Air Trails

JULY 1953 / 35 CENTS

THE LEADING MAGAZINE OF AIR PROGRESS AND AEROMODELING

BIG PLANES
MODEL PLANES
RADIO CONTROL

The Brave Baroness—First Licensed Lady Bird

Air Progress: Goodyear-Continental Race Roundup

La Sorra Wakefield Model • Swan Song Flying Boat

HERE COMES THE KIWI

A sensational new Free Flight Kit by K & B

A terrific new model designed and engineered by Lew Mahieu, former holder of 14 AMA world records, and creator of the famed "Zeek" Free Flight model.

NOW AVAILABLE IN ½ "A"

This model will handle the power of engines of larger displacement. However, it was specifically designed around the K&B .049. Its amazing power characteristics plus tremendous glide will win you many contests.

SPECIFICATIONS
SPAN 35 inches AREA 200 square inches
LENGTH 27 inches WEIGHT 5 oz. (with engine)

PRICE $2.50

NOW AVAILABLE IN "A"

Simplicity in construction is the feature of the "Kiwi". A 33% stabilizer and long tail moment arm with correct dihedral gives you a model designed for the great Torpedo power. Use .09 or 15 on the "A"

THIS IS YOUR F.A.I. COMBINATION
SPECIFICATIONS
SPAN 50 inches AREA 375 square inches
LENGTH 37 inches WEIGHT 14 oz. (with .09)

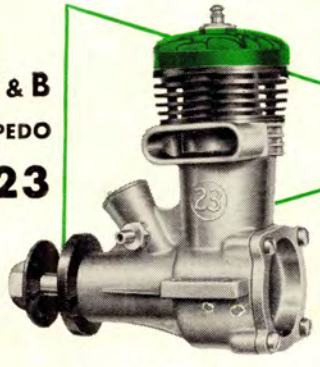
PRICE $4.50

Another "KIWI" "A"-"B"-"C" at $6.95 available soon

AND LOOK FOR THESE SPARKLING NEW STARS OF THE TORPEDO LINE NOW AVAILABLE

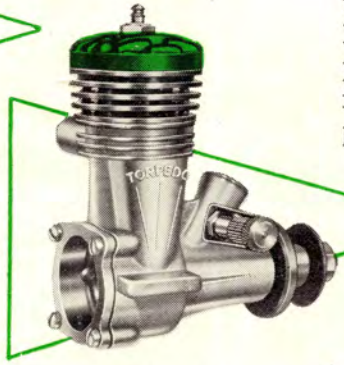
In answer to thousands of requests from modelers throughout the nation K&B has developed these powerful new engines for competition and pleasure flying.

K&B TORPEDO .23



BORE .680 STROKE .620
DISPLACEMENT .225 Cu. In.

K&B TORPEDO .15



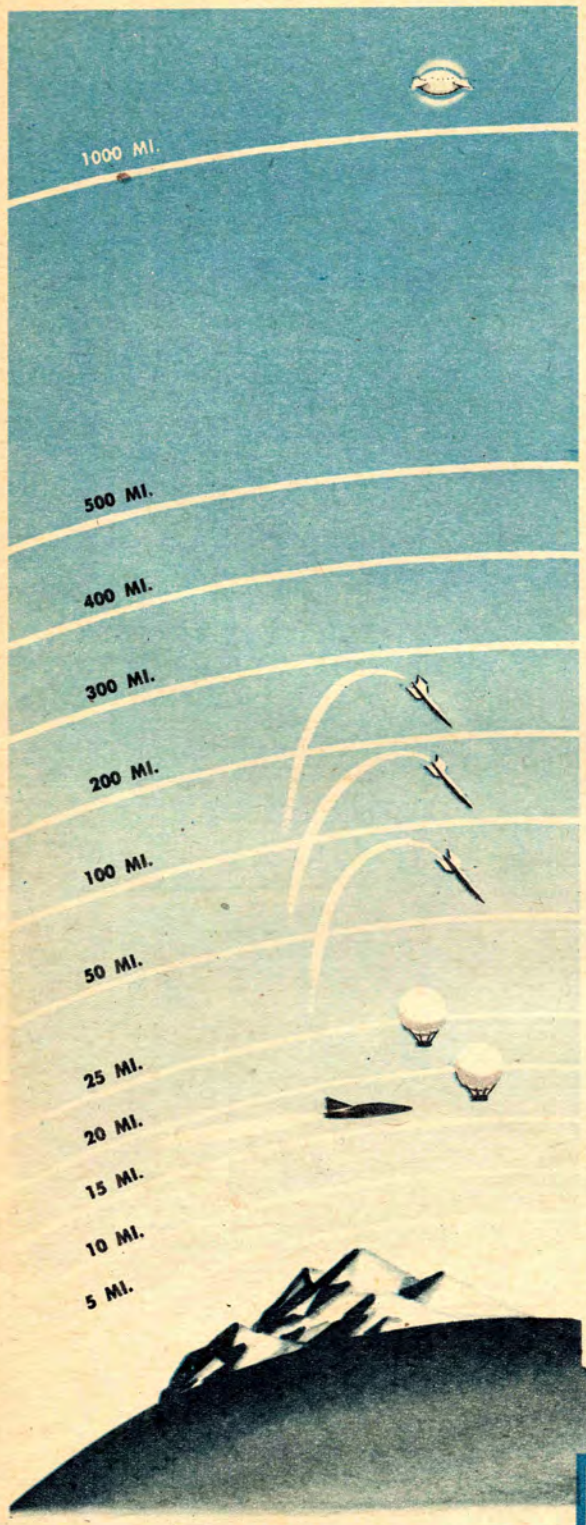
BORE .580 STROKE .550
DISPLACEMENT .149 Cu. In.

K&B TORPEDO .09

BORE .520 STROKE .464
DISPLACEMENT .099 Cu. In.

TORPEDO ENGINES

K & B Manufacturing Co.
224 East Palmer Avenue
Compton, California



Why *You* should Study Outer Space at PARKS COLLEGE

If you notice the illustration, you will see that man is rapidly pushing back the frontiers of space. At the lowest level is the airplane. At the highest is the rocket, as scientists work to establish a space platform at 1000 miles altitude to be used as a "jumping off" place for interplanetary space travel.

This fall, Parks College will be the first college to offer courses on outer space at the under-graduate level. A few of the subjects you may study are atomic and rocket propulsion — both fuels and powerplants; the characteristics and distribution of meteors, and the effects of cosmic rays on construction materials and the human body.

Today, the aviation industry is demanding men with a knowledge of rocket and atomic propulsion in the field of rockets and guided missiles. 44 major companies are working on missiles today! Your aeronautical engineering degree from PARKS, will give you a working knowledge in these fields that no other men have had before at the undergraduate level!

With a degree from Parks College, you can become one of the men who work with the rockets and guided missiles of today that lead to the space ships of tomorrow. Next Parks enrollment dates — September 1-2.

FLIGHT COURSES CAA APPROVED

Also new at Parks are courses leading to Private, Commercial Instrument, Flight Instructor, and Multi-Engine Ratings, A & E Mechanics courses also available. Check coupon for details.

All Parks schooling is approved for G. I. Training.

AIR FORCE ROTC Complete your schooling—without interruption — and receive a commission as second lieutenant in the Air Force Reserve.

Mail this coupon today!

PARKS COLLEGE OF SAINT LOUIS UNIVERSITY
2073 Cahokia Road, East St. Louis, Ill.

I am interested in:

- ☐ Aeronautical Engineering
- ☐ Maintenance Engineering
- ☐ Aeronautical Administration
- ☐ Aeronautical Meteorology
- ☐ Flight Courses
- ☐ A & E Mechanics Course
- ☐ Information on Public Law 550

Name.....Age.....

Address.....Zone.....

City.....State.....

FIRST IN AVIATION — PARKS COLLEGE — SINCE 1927

PARKS COLLEGE OF SAINT LOUIS UNIVERSITY

2073 CAHOKIA ROAD • EAST ST. LOUIS, ILL.

Air Trails

—THE LEADING MAGAZINE OF AIR PROGRESS AND AEROMODELING

Editor: Albert L. Lewis, AMA #2. **Technical Editor:** Alexis Dawydoff, FAI #321. **Editorial Production:** Carl Happel. **Art Director:** W. F. Tyler. **Assistant to the Editor:** Rose Borello. **Editorial Assistant:** Barbara Grey. **Correspondents:** Radio Models: Howard McEntee, W2S1; West Coast: Dick Everett, AMA #324; South: R. H. Elliott, AMA V. P. DISTRICT FIVE.

Cover: Douglas F3D Skyknight, Navy's twin-jet all-weather fighter, now in operation in Korea with the Marines. Has scored an impressive number of kills, serves also as escort for B-29 night missions. By: Alfred Owles.

July, 1953 • Vol. 40, No. 4

STREET & SMITH PUBLICATIONS, INC.

President.....Gerald H. Smith
Executive Vice President.....Ralph R. Whittaker, Jr.
Vice President and Secretary.....Arthur P. Lawler
Treasurer.....Thomas H. Kaiser

Walter J. McBride, Advertising Mgr., 575 Madison Ave., New York 22; Frank C. Smith, Mid-Western Adv. Mgr., 230 No. Michigan Ave., Chicago 1; West Coast Advertising Representative, Kimball, Menne Co., 2550 Beverly Blvd., Los Angeles 4, Calif., and 681 Market St., San Francisco 5, Calif.

AIR TRAILS published monthly by Street & Smith Publications, Inc., at 575 Madison Ave., New York 22, N. Y. Entered as second class matter at the post office at New York, N. Y. Authorized as second class mail Post Office Dept., Ottawa, Canada. Copyright 1953, by Street & Smith Publications, Inc., in the United States and countries signatory to the Berne Convention and Pan American Convention. 35c per copy. This issue is Vol. XL, No. 4. Please advise us if you move; allow four weeks for change of address. Give old and new address when notifying us. Subscription correspondence should be addressed to Subscription Dept., Street & Smith Publications, Inc., 304 E. 45th St., New York 17, N. Y. All characters used in fiction and semi-fiction stories in this magazine are fictitious. We cannot accept responsibility for unsolicited manuscripts or art work. All submissions must include return postage. Printed in U.S.A.

FOR THE READER

DOPE CAN—THE DOPESTER 8
AIR NOTES 12
AIRMEN OF VISION 14
THE BRAVE BARONESS: FIRST LICENSED LADYBIRD—HARRY HARPER 19
AIR PROGRESS: GOODYEAR AND CONTINENTAL RACERS—DOUG ROLFE 22
THE WORLD A-WING 24
TRY TURBINE JETS FOR YOUR MODEL —ROY L. CLOUGH, JR. 26
BONZO—S. CALHOUN SMITH 28
LITTLE BUTTERCUP—FRANK VAN BUREN 30
OFFICIAL A.M.A. MODELPLANE RULES 31
ALL-WING WONDER—PAUL DEL GATTO 32
LA SORRA—LEE RENAUD 34
SWAN SONG—ANDREW G. LENNON 36
TAKING THE MYSTERY OUT OF FREE FLIGHT—FRANK EHLING 38
CONSOLIDATED'S LIGHTNING SAILBOAT 44
OLSON & CLARK'S 4-IN-1 CHOICE 44
DMECO'S CLIPPER 45
STERLING FOKKER D VII 45
MOTOR OF MONTH: K & B'S 23 46
McENTEE ON R/C 49
R/C AT THE NATS IN PICS 49
R/C MODEL SPORTS CAR —AUBREY KOCHMAN 50
FRANK'S BIG BUTTERCUP —FRANK VAN BUREN 52
SIMPLE/SINGLE HARD TUBER —HOWARD McENTEE 54
WESTERN ROUNDUP—DICK EVERETT 60
SOUTHERN SCENE—R. H. ELLIOTT 66
THE MODEL BIZ 70
SHOWCASE 76

FROM THE READER

Special Wakefield Event at Nationals! . . . Our committee is sponsoring a special Wakefield event at the Nationals for team competition called the Wakefield Challenge. All the arrangements have been made with the powers that be, and all we need now is to have the interested modelers get the news.

Briefly, here is the dope. The event is to consist of teams of four flyers each, from a club, city, or limited area. Flying will be done in predetermined flight order, the first round starting about 6 p.m. of a given day. Second round will start at dawn the following morning, and the third round will follow the second. The winning team will be determined by the total time of the three highest men on each team, making it a real team effort instead of the usual individual win. A 30" engraved trophy will be awarded the winning team. 1953 official rules for the Wakefield event will be strictly adhered to.

Actually, this event will be run exactly as the finals are run, by teams. It is amusing to note that this event will be sort of a consolidated deal for those who didn't get on the U.S.A. team. Our event will be run at almost the very same hour as the finals will be going off in England. The whole idea in this is to get the modelers into the old *team* spirit which is sadly lacking in many ways. An event like this could create much interest such as the old Moffett events of prewar years.

Ed Dolby, Chairman New England Wakefield Committee, Rockland, Mass.

Instructor Is Scale Fan . . . I want the plans to build the B-26 (Invader). It was featured in the Model Annual for 1953, by Lt. Dick Atkins, Jr. I am an avid model builder since 1940 and have built many scale models. I am a pilot by profession and have flown most all types of military and civilian aircraft. At present I am teaching the boys to fly the T-6G at Stallings Air Base.

John B. McDonald, Kinston, N. C.

One Fiend to Another . . . I have finished reading the A. T. Model Annual for 1953 and it contains much information which I can put to good advantage. I recommend it to everybody who is a model fiend.

Stan Davenport, Little Rock, Ark.

Robert Carries On . . . I am sending a money order for a subscription to Robert Rouse now in the Army . . . I built my first model in 1912, had my first ride in a Jenny in 1919. I have built a few rubber and gas powered models in my day.

Max Rouse, Mt. Pleasant, Iowa

Inspiration vs. Expiration . . . I like Air Trails, it gives me an inspiration even though most of my planes end in disaster.

Joseph Bulfaro, Camden, N. J.

Jenny Keeps Popular . . . I have always had the desire to build a scale model of the JN-4D Jenny. You did a wonderful job in Air Progress on a detailed view of the Jenny. I was most happy to find plans for the Jenny in the April issue of Air Trails.

John J. Filo, Dunellen, N. J.

Prize Porsche . . . When I was at the International Motor Sports Show in NYC I saw a small radio-controlled sports car. Somebody said it was a Porch and was made by Air Trails. It sure looked like an interesting job. Can you give me any details on it?

John McVhey, Syosset, N. Y.

• You're right on three counts, John. It's AT's (1) model (2) radio-controlled (3) sports car. But "porch"—no. Porsche (pronounced por-sha) is a well-known German-made U. S. import job. The model (see pages 50-51 this issue) won a trophy award at the IMSS for outstanding finish. Here's a shot of body-builder Kochman, Herb Shriner, TV star and sponsor of the Show with Polk's Gil Rose who assisted with the radio installation. Below is Miss R/C Model-Auto of 1953.

(Continued on page 65)

All communications to the editors should be addressed to 304 East 45th St., New York 17, N. Y. **Subscription prices:** U. S. and Possessions—$3.50 per year, $6.00 for two years; Canada—$4.00 per year, $7.00 for two years; countries of the Pan American Union—$7.00 per year, $10.00 for two years; elsewhere—$10.00 per year, $14.00 for two years. **Please advise us if you move,** giving old address and new address; allow four weeks for change of address; address all subscription mail to **Air Trails Subscription Department,** 304 East 45th St., New York 17, N. Y.

YOU CAN WIN

THIS BEAUTIFUL NEW 1953 MERCURY

and 25 additional prizes

including 21" TV Sets - Bicycles - Wrist Watches - Radios

Cameras - and other valuable prizes

OHLSSON *Gold Seal*

$5000

SLOGAN CONTEST

IT'S EASY TO ENTER THIS CONTEST.

All you have to do is write a brief slogan about Ohlsson Gold Seal Fuels.

It's that simple because Ohlsson Gold Seal Fuels are the finest that have ever been formulated for Model Engines.

The slogan will become the property of the Ohlsson Manufacturing Company to be used in conjunction with the Gold Seal trade mark to describe the outstanding performance of Ohlsson Fuels.

See your hobby dealer for a contest entry form and rules of contest. You may send in as many slogans as you wish, but include the coupon from the top of an Ohlsson Gold Seal Fuel can with each entry.

OHLSSON GOLD SEAL FUELS . . .

made for model builders by a nationally famous model builder in America's most modern fuel plant. Scientific blending assures consistent top performance.

2 ENTIRELY NEW GLO FUEL FORMULAS:

Ohlsson Gold Seal for ½A engines

Ohlsson Gold Seal "200" for engines above ½A class

Half pints 50¢—Pints 90¢

In addition to Methanol, Nitroparaffins and high grade lubricants—*new* and advanced additives ***NOT FOUND IN ANY OTHER FUELS*** are included. These new additives, included in all Gold Seal fuels, increase performance and R.P.M.'s while reducing engine wear to an absolute minimum.

Continuous use of Ohlsson fuels will prevent the formation of Varnish, Gums, Sludge or Carbon in your engine.

***FLASH!*— GOLD SEAL'S NEWEST DIESEL FUEL**

Compounded for all compression ignition engines. Half pints 50¢—Pints 90¢.

"It's so revolutionary, you *just won't believe it* 'til you try it!"

***mail your entries today to* OHLSSON MANUFACTURING COMPANY**

1547 WEST SIXTEENTH STREET • LONG BEACH 13, CALIFORNIA

AMERICA'S HOBBY CENTER, Inc.

SAN FRANCISCO · DENVER · CHICAGO · NEW YORK · BROOKLYN · NEW ORLEANS

ESTABLISHED 1931

22nd YEAR

1953 LARGEST MODEL & SUPPLY FIRM IN AMERICA

The only model store that gives you . . .

NO EXTRA CHARGE!!
items with gas engines, incl.:

(with diesel or glo engines, all needed items are given). Items include • Quality Coil • Everlast Condenser • Hi-Tension Wire • Stranded Ignition Wire • Insulated Coil Holder • Correct Size Prop • Presto-Engine Starter • Complete Instructions • Battery Box • Slide Switch • 24 pg. Engine Manual • 4 Mounting Bolts • 4 Mounting Nuts • 4 Wiring Lugs • Spark or Glo Plug • Identification Tags • Motor Cover • Speed Indicator • Log Book • Trouble Shooting Chart • No. 70 Oil • Membership in Modelcrafters of America • A H C Guaranty • 128 pg. Giant 2-Color Catalog • No Postage, Packing and insurance if ordered by mail.

items with gas planes incl.:

• Correct Rubber Wheels • Giant Construction Manual • Speed Indicator • Log Book • Complete Full Size Plans • Insignia • Membership in Modelcrafters of America • 128 pg. Giant 2-color Catalog • Plus Free Postage, Packing and Insurance if ordered by mail. (Premiums on Planes selling at over $1.50 only)

1. One year subscriptions to model Airplane News, Air Trails and Flying Models or its equivalent value to our regular customers.
2. 14-Day Money Back guarantee on unused purchases.
3. No postage or packing charges for orders of over $1.00 (include 25c if order is under $1.00) — we insure safe delivery ANYWHERE IN THE WORLD.
4. 24 hour service. Mail addresses in Chicago, San Francisco, Denver and New Orleans which will airmail your orders to our N. Y. office for prompt shipment.
5. Most complete model stock in America—gas, rubber, solids, etc. if it's advertised, we can usually supply it.
6. Competent understanding of your modeling problems.
7. No "minimum" orders. Any order is welcome.
8. With engines. 50 ITEMS WORTH OVER $7.00 AT NO EXTRA COST. SEE BOX ON LEFT.
9. Rubber wheels, etc., etc., with gas planes. 12 ITEMS WORTH $3.50 AT NO EXTRA COST. SEE BOX ON LEFT.
10. Membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY ON YOUR PURCHASES. OVER 90,000 members.
11. Illustrated giant 2-color 128 page catalog with every order.

N. Y. CITY MODELERS

TWO STORES TO SERVE YOU!

Largest stock in the country at either of our two stores . . .

156 W. 22nd St., New York City

1065 Broadway, Brooklyn, N. Y.

Experts on hand to help you with your problems. Complete stock including engine parts and service at both stores.

Copyright 1953 America's Hobby Center, Inc.

We duplicate any offers made by any other advertiser. Just attach their ad to your order.

ENGINES

GLO ENGINES

Atwood 049 (UC)	(AA)	5.50
Atwood 049 (FF)	(AA)	6.75
Atwood 061	(AA)	6.50
Cameron Ring	(A)	9.95
Cameron Lapped	(A)	9.95
Cameron 2-Speed	(A)	11.95
Cox .15	(C)	8.95
Forster F. 29 Glo	(B)	11.20
Forster F. 31 Glo	(C)	11.20
Fox 29	(B)	14.95
Fox 19	(A)	13.95
Fox 35	(C)	14.95
Infant Torpedo	(AA)	5.50
K & B Glo Torp 29	(B)	18.95
K & B Glo Torp 32	(C)	15.95
K & B Torpedo .049	(A)	6.75
K & B Torpedo 19	(A)	13.95
K & B 19 (2-speed)	(A)	16.95
K & B Torpedo 23	(B)	13.95
K & B Torpedo 15	(A)	8.95
K & B Torpedo .09	(AA)	7.95
McCoy 9	(A)	7.95
McCoy 19 Sport	(A)	9.95
McCoy 19 R.H.	(A)	10.95
McCoy 29 Sport	(B)	11.95
McCoy 29 R.H.	(B)	14.95
Ohlsson .23 Rv Deluxe	(B)	11.95
Ohlsson 29 Glo	(B)	13.95
Ohlsson 33 Glo	(C)	13.95
Ohlsson 29 Marine	(B)	14.95
Ohlsson 60 Glo	(D)	13.95
O.K. Cub .099	(A)	6.95
O.K. Cub .099 Pkge.	(A)	7.75
O.K. Cub .049	(AA)	4.95
O.K. Cub .049	(AA)	5.25
O.K. Cub .049 Pkge.	(AA)	5.75
O.K. Cub 049X Pkg.(AA)		6.25
O.K. Cub .074	(AA)	5.95
O.K. Cub .074 Pkge.	(AA)	6.75
O.K. Cub .049 Kit	(AA)	4.95
O.K. Cub .14	(A)	8.95
O.K. Hothead Glo	(B)	10.95
OS 29	(B)	14.95
Royal Baby Spitfire Pkge.	(AA)	4.95
Royal Spitfire	(AA)	7.95
Space Bug	(AA)	6.95
Space Bug Jr. 049	(AA)	3.95
Spitfire Hornet .099	(AA)	5.95
Spitzy	(AA)	4.47
Spitzy Senior Pkge.	(AA)	3.86
Triumph .49 or .51	(A)	10.95
Thermal Hopper (FF)	(AA)	6.95
Veco 29	(B)	14.95
Veco 31	(C)	14.95
Wasp (FF)	(AA)	5.95
Wasp (U-C)	(AA)	5.70

DIESEL ENGINES

McCoy .049	(AA)	6.96
O.K. Cub .06	(AA)	7.50
O.K. Cub .15	(A)	9.50

IGNITION ENGINES

Dennymite	(C)	6.95
Hornet 60	(D)	10.95
Judco Kit	(A)	6.95
K & B Torpedo 29	(B)	18.50
Ohlsson 23 RV Deluxe	(B)	12.95
Ohlsson 29 Rotary	(B)	14.95
Ohlsson 33	(C)	14.95
Ohlsson 60 Luxe	(D)	14.95
O.K. Hothead (Sup 29)	(B)	12.95
Phantom P-30	(A)	13.95
Rogers 29	(B)	9.95
Spitfire	(C)	24.95
Thor	(B)	9.95
Wasp Twin	(D)	29.50

JET ENGINES

Dyna-Jet Redhead	85.00
Jetex 50	1.95
Jetex 150	4.95
Jetex 350	8.95

ELECTRIC MOTORS

Dynamite	1.98
Speed Reduction Unit	4.50
Dumas Electric Drive Unit	4.50
Imp Outboard	3.50

ENGINE PARTS!!

EVERY part for EVERY ENGINE listed on these pages is IN STOCK at America's Hobby Center. Send today for the parts you need to keep your engine in flying condition.

HO RAILS

Did you know A.H.C. now carries a complete line of HO? Send 25c for catalog.

FREE-FLIGHT PLANES

Baby Phoenix 36" AA	1.75
Beaver 44" AA	2.95
Bird Dog 36" FF AA	2.95
Bootstrap 40" AA	2.50
Buccaneer B Special 54" B	3.95
Champion 36" A-AA	2.50
Clipper 34" AA	2.95
Commanche 36" AA	2.75
Dakota 24" AA	2.75
Fully 32" AA	1.75
Fu-bar 36" AA	1.95
Fu-Bar 65 65" B-C	6.95
Hawk 27" AA	1.50
Helioplane 39" AA	3.95
Jasco Rival 44" AA	2.75
Jasco Streak 32" AA	1.95
Junior Phoenix 36" A	2.25
KIWI 35" AA	2.50
KIWI 44" A	3.50
KIWI ABC 61" A-B-C	6.95
Lift Master 34" AA	2.25
Lil Rascal 27" AA	1.50
Luscombe Sedan 76" C-D	7.50
Luscombe Silvaire 43" A-B	3.00
Mini-Hogan 34 34" AA	1.95
Mini-Hogan 45 45" AA	2.95
Navajo 36" AA	2.50
Nomad 18" AA	1.75
PAA Master 35" AA	2.50
Pacemaker 40" AA	2.50
Phoenix Flash 32" AA	1.75
Phoenix Skipper 24" AA	2.25
Powerhouse 33" AA	1.75
Powerhouse 41" A	3.95
Powerhouse 56" B	4.95
Privateer Flying Boat 36" FF AA	2.95
Profile Powerhouse 24" AA	1.00
Sandy Hogan 70" B-C	5.95
Seat Free 34" AA	2.95
Shadow 32" AA	1.95
Sioux 36" AA	2.75
Skylark 31" AA	2.00
Sniffer 29" AA	1.95
Spitfire Ace 36" AA	2.95
Spitfire Ace 36" AA (incl. engine)	5.95
Super Brigadier 58" B	4.95
Taylor Cub 35" AA	2.95
Trixter Cub 29" AA	2.00
Trixter Beam 50" AA-A	6.95
Yank 23" AA	1.50
Zeek 33" AA	2.50
Zeke 60" A-B	4.95

U-CONTROL PLANES

A/2 Twin 25½" AA	2.95
Aeronca Sedan 22" AA	1.95
A. J. Firebull 36" B-C-D	6.95
Aeromite 17" AA	4.95
Air Racer 18" AA	3.95
All Amer. Trainer 21" AA	1.75
All Amer. Stunt Trainer Jr. 26" A-AA	2.50
All Amer. Stunt 36" A-B	4.95
All Amer. Sr. Stunt 51" B-C	5.95
Baby Barnstormer 23" AA	2.95
Baby Clown 22" AA	1.50
Baby Era 18" AA-A	2.50
Baby Era Ripe 16" AA	2.50
Baby V Shark 20" A-B	2.95
Barnstormer 47" A-B	5.95
Bearcat, Jr. 20" AA-A	1.50
Bearcat 35" C-D	4.95
Beechcraft Half A 16" AA-A	2.95
Bel-Air 18" AA-A	2.95
Ben Howards Pete 36" B-C-D	5.95
Bipe Stunt Train. 22" B-C-D	3.95
Boeing F4B4 17½" AA	2.95
Boeing P26A 18" AA	2.95
Brave 36" A-B-C	4.75
Cessna 22" AA	1.95
Cessna 36" B-C	5.95
Chief 53" B-C	6.95
Combat Sky Box 36" A-B	2.95
Corsair 17" A-AA	2.95
Curtis P40F 29" AA	3.95
Curtiss Hawk P8E 17½" AA	2.95
Duneco Spl. 24" C-D	7.95
Douglas Navy Skyraider (Plastic) 12½" AA	5.00
Duster 15" AA	2.95
Duster 15" AA (Incl. Engine)	7.95
Dynamic 26" A-B	4.50
F4U Supersonic 24" AA	2.95
F4S Supersonic (Incl. Engine)	7.50
F6S Supersonic 28" AA	5.95
F6S Supersonic (Incl. Engine)	8.95
Fire Baby 19" AA	2.50
Firebaby (Incl. Engine)	7.50
Firebaby Biplane 19" AA	3.50
Firebaby Biplane (Incl. engine)	9.75
Flip-Flap 24" A-B	3.60
Flying Clown 28" A-B-C	1.98
Focke Wulfe 190 17" AA	2.95
Fokker D-VII 32½" UC A-B-C	5.95
Freshman 9 24" A	2.48
Freshman 29 36" B	3.98
Great Lakes Trainer 27" A-B	5.98
Guided Star 24" A-B-C	5.95
Guided Starlet 24" AA	2.75
Hell—Razor 9" AA	2.00
Hell—Razor 14" A	5.95
Hell—Razor 15" B	6.50
Hell—Razor 18" D	6.95
Howard Ike 20" AA	3.00
Infant Wagon 20" AA	1.95
Junior Stunt 9 27" AA-A	3.48
Junior Stunt 19 34" A	3.95
Junior Stunt 29 40" B	4.98
Kenhi Wildcat 39" A-B	4.45
Kenhi Bobcat 39" A-B	3.95
Kenhi Cougar 51" B-C	6.95
Kenhi Mustang 48" B-C	6.95
Key 22" B-C	3.95
Key—Det 18" AA-A	2.95
Kingpin 28" A-B	3.95
Knockout 18" AA	2.50
Lil Duper Zilch 42" A-B	3.95
Little Ace 18" AA-A	1.95
Little Ripe 16" AA-A	1.50
Little Devil 18" AA-A	1.50
Little Mustang 18" AA	1.95
Little Sabre 18" AA	1.95
Little Schnoe 17" AA	1.50
ME 109 Jr. (P.D.Q.) 22" AA	1.50
Minnow 28" A-B-C	6.95
Mini-Zilch 19" AA	1.25
Monocoupe 36" B-C	4.95
Mr. Mulligan 32" B-C (Sterling)	4.95
Mustang 37" A-B (Berkeley)	5.95
Mustang F51 36" B-C (P.D.Q.)	2.95
Mustang (Sterling) A-B-C 38"	2.95
Mustang (Veco) 48" B-C	7.95
Mustang Jr. (P.D.Q.) 29" AA	1.50
N.A. P51 16" AA (Cons)	2.95
No. Amer. T6 (SNJ) 31" A-B-C	4.95
N. A. Savage 28" AA	6.95
Papoose 32" A	3.95
Pee Wee Pursuit 16" AA	1.50
Peter Pan 16" AA	1.50
Piper Cub 22" AA	1.98
Piper Vagabond 36" A-B-C	3.95
Pitts Special 25" A-B	4.95
Polish Fighter 36" B-C-D	6.95
Primer 18" AA	1.40
PT Trainer 26" A-B	1.99
Puddle Jumper 19" AA	1.00
Quest 30" B	4.95
Ringmaster 42" B-C	2.95
Ryan S. T 36" B-C	5.95
Scientific 2 in 1 Kit 18" AA	1.50
Scout 24" AA	2.50
SE 5 17" AA	2.50
SE 5 32" B-C-D	6.95
Senior 9 27"	3.48
Senior 19 34"	3.98
Senior 29 39"	4.98
Senor Puddlejumper 25" A-B	1.95
Sharpy 27" AA	4.95
Shoestring, 28" A-B-C	5.95
Skyleader 18" A-AA	2.50
Slick Trick 18" AA	1.95
Small Fry 17" AA-A	2.50
Smoothie 32" A-B	7.95
Sophomore 9" A	2.48
Sophomore 19 33" A	3.98
Sophomore 29 39" B	3.98
Space Master 24" AA-A	2.25
Speedster 12" AA	1.95
Speedwagon 20 12" A	3.95
Spitfire 29" AA	3.95
Spitfire Jr 20" AA	1.50
Spitfire 18" AA	2.95
Sport Racer 18" AA	1.50
Sportwing 36" A-B-C	3.95
Square 29" A-B-C	5.75
Stinson 22" AA	1.95
Streamliner 25" B-C-D	4.00
Stunt Runt 16" AA	1.25
Stuntwagon 58" D	7.95
Super Clown 36" B-C	2.95
Super Duper Zilch 52" C-D	5.95
Super Knock-Out 24" A-B	3.50

BURIED IN THIS AD

are most of the new items. Sometimes there isn't time or space to include them. But, if available, we have it.

Trixter Prof. Trainer 32" A-B	3.50
Trixter Profile 32" A-B	2.50
Trixter Profile 58" B-C	3.50
Trixter Twin Profile 47" B-C	5.00
Typhoon 17" AA	2.95
Vampire 40" B-C	4.50
Viking 51" C-D	5.75
Viten 21" AA	1.95
Waco 33" B-C	5.95
Warhawk 32½" B-C	5.95
Warhawk Berk. 48" A-B-C	4.95
Warrior 36" A-B-C	4.95
Wee Duper Zilch 34" AA	2.95
Wee Willie 18" AA-A	1.95
Whirlaway 11" AB	3.95
Wing Ding 18" AA-A-B	2.25
Wing Dingus 16" AA	2.25
Yak (P.D.Q) 38" B-C	2.95
Yak Jr. (P.D.Q.) 29" AA	1.50
Yak (Sterling) A-B-C	2.95
Yank 23" AA	1.50
Zenith 19" AA	2.50
Zero 18" AA	2.95
Zero, Jr. 25" AA-A	1.50

RADIO CONTROL PLANES

Bootstraps "A-RC" 54" AA-A	3.95
Brigadier RC 38" AA-A	1.95
Jasco RC Master 49" AA-A	9.95
Kitten 34" AA	3.95
Livewire RC 48" AA	6.95
Livewire Sr. 65" A	14.95
Buccaneer B Special 54" B	3.95
Buccaneer C Special 72" C	7.95
Super Brigadier 58" B-C	4.95
Super Buccaneer 90" C-D	10.95
Custom Cavalier 108" D-E	17.50
Luscombe Sedan 76" C-D	7.50
Trixter Beam 50" AA-A	6.95

RADIO CONTROL

Super Aerotrol "Ready to Operate" includes Transmitter, Antenna, Receiver, Escapement, Meter, Tubes. Everything to operate & maintain except batteries 49.95
Aerotrol Manual 1.00
Aerotrol Kit 22.95
Aerotrol Escapement Kit 2.95
Super Aerotrol Receiver Kit 13.95
Super Aerotrol Rec. Assb'ld. 22.95
Super Aerotrol Transmitter Kit 19.95
Super Aerotrol Trans. Assb'ld. 27.95
Super Aerotrol Escapement 3.95

Zero 3 Milliammeter	3.50
Zero 50 Milliammeter	2.75
Whip Antenna	3.00

Also All R.C. Parts and Batteries

PROPELLERS

Tornado
6" D 2-3-4-5-6-7-8 P 15
6" D 2-3-4-5-6-7-8 P 15
7" D 2-3-4-5-6-8-9 P 20
8" D 3-4-5-6-8 P 25
9" D 2-3-4-5-6-7 P 30
10" D 2-3-4-5-6 P 30
Scamper Plastic 5½" 3p., 6" 4p. .25; 9" 6p., 45 10" 10p., 11" 8 p. 65
Kaysun plastic 5/3, 5½/4, 6/3, 6/4, 6.5—15c; 7—20c
Top-Flite—6" in 3, 4, 5 p—20c; 7" in 4, 6 p; 8" in 3½, 6, 8, 10 p; 9" in 4, 6, 8, 12 p; 10" in 3½, 6, 8, 12 p—25c; 11" in 4, 6, 8, 10, 12 p; 12" in 6, 8 p; 13" 5½ p; 14" 6 p—30c.
Flo-Torque, Power, Veco, Testors, Berkeley.

METAL GAS TANKS

Dale Stunt Tanks—All Sizes 65
#1—1½x1½x½ #4—4½x1½x½
#2—2½x1½x½ #5—1½x1½x1
#3—2½x1½x1 #12—3½x1½x½
#13—2½x1½x1¾
#19—1½x2½x½:
#20—2½x2½x½ 50
From: #14—2½x1½x2 85
#15—2x1x2½ 85
#17—3½x1½x1½ 65
#17A—3½x2½x½ 60
Berkeley: AA—30; A—75
B—75; C—85; D—85
Pylon Plastic: Small .75, Medium .95, Large 1.25
Also Maeco, Acme, Darwin, etc.

SPARK & GLO PLUGS

Champion Glo V, V2, V3 75
Champion Spark V, V2, V3 50
McCoy Hot Point 65
Ohlsson Glo (V, V2 or A4) 65
O.K. Glo-plug (V2 or V3) 59
K&B V2, V3 . . . . . .65; Everglo 75
Baby Spitfire V2 or V3 65
Cox Hotspot 65

IGNITION ACCESSORIES

6 ft. Hook-up wire 25
Austin Booster Plug-in 30
Midget Switch: slide—.25 Turn .50
Ohlsson Snap Pack 35
Condenser .20; Smith Metal 35
Ohlsson Instant Clip 15
Alligator Clips 10
O.K. Coil . . . . . 1.50 Rogers Coil 2.00
O.K. Twin Coil 4.00 Wilco Coil 1.95
Smith Firecracker Coil 2.75
6½ Volt Battery 80
Battery Conn. Cord Kit 40

PROP SPINNERS

1¼"—65c; 1½"—85c; 2" 95
Plastic 1¼"—30c; 1½" 40
Plastic 1¾", 1½", 2", 2½" 45
Also Wen-Mac, Austin.

WHEELS

Semi Pneumatic (pr) 2" 1.25
2.5" — 1.40 3" — 1.75
Sponge Rubber (pr) ⅞"-1" 30¢
1¼": 1½" 35c 1⅝" 40c 1¾" 45c
2" 50c
2½" 1.00 3" 1.25 3½" 1.50
Wheel Collar 15c; Collar & Hub 25c

MISCELLANEOUS

Glo Engine Handbook 1.00
Spitfire Fly Prop Clip 15
Batt. Box Pen., Medium, Regular 40
Brass Tubing 1/16", 3/32", 1/8" 20
Copper Tubing ¼" OD, per ft. 15
Finger Guard 25
Fuel Pump (pt. or ½ pt.) 65
Nylon Nylon Pump 60
Handy Boy Fuel Dispenser 1.25
Presto Disc Starter 25
Pylon Engine Starter 1.95
Mod Motor Mounts, Sm—50¢; Lg. 60
Black Neoprene Tubing, per foot 30
Transmitter (reg. or AA) ft. 15
Spitfire Timer Valve 2.95
D.E. Shutoff Valve 1.25
No. 70 oil, 8 oz.—25¢; pint 60
Plastic Fuselage 19" set of 2 50
Plug Wrench, 3-way—15¢; 4-way .25
Plywood (6"x12") 1/32" 20
1/16"—25¢; 1/8"—30¢; 1/4" 35
Silk per yard 1.50
Nylon (White or Yellow) yd. 2.25
Socket Plug Wrench, 4-way 40
Flexible Needle Valves: Cub, Royal Spitfire, Spitzy—49c: Wasp, Baby Spit, Infant, Torp Jr., Torpo 48—35c; Universal Needle Valve (A-B-C engines) 50c; Flexible 75c
Needle Valve Extension flexible 25
McCoy Speed Needle Valve 50
Vibratac 3.00
E-Z Running Stand 1.75
E-Z Minimount (¼A) 1.25
Pilot Heads . . . . . .05, .10, .50
Sandpacker Packs . . . . . .10 & .20
Glue Gun . . . . . .50 & .75
Landing Gear Spade Bolts 15
Landing Gear 2 Bolts 25
Bolts ½", ⅝", ¾", 1", 1¼", 1½", 2" 12-20
Grant's Model Airplane Design 3.75
¾" Insignia Decals 10
Scoremaster Decals (100) 15
Alfa-Bet Decals ¼" 25
Small Parts Case 50
Aerogloss Plastic Balsa Tube 50
4 oz. 60
Rubbing Compound 25
Marking Tape ⅛"x30' 35
Plane Kleener 50

DOPES (Cont'l U.S.A. Only)
We carry all lines of dope and cement: Aerogloss, Comet, Testors, etc.

U-CONTROL ACCESSORIES

Adjustable Push Rod set	.25
Anderson Horn and Hinge Set	.15
BERKELEY control lines	
.004 or .006x2-35	.35
.006x2-52	.50
.008, .010, .012: 2-45'	.50
.008, .010, .012, .014 2-70	.65
.008, .012, .016: 2-150'	1.00
Stranded .015, .021 45' 1.00; 70' 1.25; 200'	3.50
Berkeley Metal Flight Reel	1.25
Berkeley Metal Handle	1.00
Controliner Flight Reel (with wire) AA—1.85; A-B	2.25
Elevator control horn; Veco .25 &	.30
Elevator hinges 4 for	.10
E-Z Plastic Control Handle	.85
Flex Lead-in Wire AA or AB 3 ft.	.15
Luxon Clips A, B, C or D Pr	.10
PYLON control lines	
.008, .010, .012, .014, .016 dia. 2-52' lines	.60
.008, .010, .012, .014, .016, dia. 2-70' lines	.75
Flexible 2-52' 1.50; 2-70'	1.95
Pylon Bellcrank 2"—.20; 3"	.25
Pylon Conn. Clips A, B or C 2 for	.15
Pylon Control line Reel	1.25
Pylon Flex Lead-in Wire, 8 Ft.	.25
Pylon Plastic Handle 5"	.85
Reel Pal Reel	1.00
Simplex Handle & Reel	1.50
T. D. Handy Reel El Handle 1½A	1.50
Skylon 1½A Reel	1.49
Stunt Bellcrank & Elev. Horn	.25
Swivels, small 15c pr.; large	.20
Tommy Handreel	1.75
Handy Reel (Consol)	2.95
Handy Safety Thong	.75
T. D. Handy Reel	2.95
U-Reely Contr.—7.50; cable	8.50
Veco Bellcrank 2"—25; 3"	.30
Veco Push Rod Keeper	.30
Wood Control handle	.25

MODEL BOATS

Chris-Craft Challenger 33" C-D	9.75
Chris-Craft 26" C-D	6.75
Chris-Craft Express 25" BCD	5.75
Chris-Craft Runabout 25" BCD	6.25
Harco 25" B-C-D	6.25
Owens Yacht 26" B-C-D	6.25
Vineyard 25" BCD	6.25
Dumas Electric Drive Unit	4.00
Buckeye prefab. 17" A-B-C	4.95
Buckeye Jr. 13½" AA-A	2.95
Buckeye Cabin Jr. 13½" AA-A	3.95
C.C. Riviera .12" AA	2.95
C.C. Riviera 21½" AA-A	3.50
C.C. Catalina 31" A-B-C	11.95
C.C. Outboard Cruiser 18" AA	2.95
C.C. Special 12½" AA-A	3.50
Higgins Speedster 16½" AA-A	4.95
Richardson Sedan 17" AA-A	5.95
Royal Skimmer (Incl. Engine)	10.95
Spitcraft Plastic (Incl. Engine)	14.95
Spitcraft (Plastic)	7.95
Sterling C.C. Buce 19" AA-A	7.95
C.C. Exp. Cruiser 14" AA-A	3.50
Resorter 12" AA	2.95
Sea Maid 12" AA	2.95
Sea Maid 27" A-B	7.95
C.C. 21" Express AA	2.95
C.C. 21" Sportsman AA	2.95
Century Resorter 12" AA	3.25
Century Seamaid 12" AA	2.95
Cruiser 28" Radio Control A-B	9.95
Scientific Sea Hawk 12" AA	2.50
XP-300 Dream Boat 12" AA	1.95

RACE CARS

Automite Wen Mac AA	10.95
Half-pint (AA)	2.95
Ohlsson Complete with Engine	19.95
Rodzy Complete with Engine	16.95

2 ENGINE BARGAINS

O&R 60 Sideport Engine. Discontinued number. Regularly $16.50. Your choice ignition or glo for only $9.95.

Anderson Spitfire Class D .645 engine. Regularly $24.95. One of the most powerful engines. Your choice of ignition for $14.95 or glo for $18.45.

And with each engine, you can buy 6 matching 45c props for $1.00.

Both BRAND NEW and Fully GUARANTEED

SPECIAL SOUVENIR BARGAIN

The manufacturer of a well-known engine, after selling 30,000 at $9.96, has decided to go out of production. We have his remainder of 1,000 complete sets of finished and unfinished castings and parts: Cylinder, piston pin, connecting rod, needle valve, gas line, timer, crankshaft, crankcase, cam, etc., including screws, gaskets, nuts, etc.

You get a complete set, except spark plug and tank. An interesting souvenir of a model engine in the raw for your den or desk.

No. J9 . . . $1.00 per Complete Set

SPECIAL BARGAIN IN PROPELLERS

SPECIAL BARGAIN IN PROPELLERS
15 ASSORTED FOR $1.00

We have purchased 50,000 assorted gas model propellers from the country's largest prop manufacturer.

They are ALL PERFECT and range from Champion semi-finished (listing at 6 for $1.00) to finished and lacquered props that sell up to 45¢ each regularly. Various pitches, in sizes from 7" to 14".

No selections, please, but we will send you a fine assortment of 15 for $1.00, if accompanied by an order for anything advertised in this magazine. MONEY BACK GUARANTY.

Super Squirt 21" (Jet)	5.95
Sweet Chariot 18" AA-A	2.50
T-28 N.A. Trainer 30" B.C.	5.95
TD1 24" AA	9.95
Thunderbolt 40" C-D	4.95
Tiny 12" AA	2.50
Trail Blazer 24" B-C-D	2.95
Trixter Babe 20" AA	1.25
Trixter Invert Jr. 40" A-B	3.95
Citizenship Receiver	29.90
Citizenship Transmitter	39.75
Citizenship Escapement	9.95
Good Bros. Escapement	13.50
ECC Transmitter	18.95
ECC Receiver	18.95
Citizenship Escapement	9.95
Good Bros. Escapement	13.50
ECC Transmitter	18.95
ECC Receiver	18.95

DE LUXE HOBBY CATALOGS

25¢ — 128 page 2-color 9" x 6" catalog, *fully illustrated*. Over 10,000 items, including gas, glo, diesel, and jet engines, engine and rubber powered planes, boats, cars, solids of all kinds, tools, engine parts, etc., etc. PLUS pages and pages of accessories, engine parts, decals, wood, dope AND EVERYTHING.

10¢ FREE — 64 page 2 color 9" x 6" *illustrated* catalog. Free Sight and U-Control planes, engines (gas, glo, jet, diesel, Co-2), accessories and supplies, rubber powered planes, solids, boats, cars. Over 5000 items.

Fine jumbo catalog of thousands of hobby items: Plane, boat, car, engines, accessories, solids, gas, rubber, etc., etc.

CANADIANS! You save plenty by ordering from us. Send remittance in full.

SALE SPECIAL
WINSTON GAS ENGINE LIBRARY

FOUR BIG BOOKS FOR ONLY . . . 1.25

REGULAR PRICE $1.00 EACH
A $4.00 VALUE FOR ONLY $1.25.

Here is a BARGAIN no modeler (beginner or expert) should pass up. Four separate volumes covering every phase of gas and glo engine operation, *plus* building and flying powered free-flight and control line airplanes, *plus* lots of other information on boats, cars, farming model clubs, etc., etc. All written by Bernard S. Winston, whose books and articles have been read by over 1,000,000 modelers. *Well over 200,000 copies of these books were sold at $1.00 each.*

1. **MODEL GAS ENGINE HANDBOOK** — 150 pages, 80 illustrations. A complete manual of the theory and practice of Model Gas Engine operation. Includes specifications of principal engines, blueprints, directory, dictionary, etc.
2. **GLO ENGINE HANDBOOK** — 64 pages, 80 illustrations. A complete manual on Glo Engines—their theory, operation and care. Includes everything from buying your engine to breaking-in, flying and trouble shooting, plus dictionary, directory, prop size chart, etc.
3. **CONTROL-LINERS** — How to build and fly them. Includes everything: how the sport started, types, designs, construction, power plant, propellers, controls, doping and painting, etc., etc. Covers the subject from A to Z.
4. **GAS MODEL PLANE CONSTRUCTION** — Over 152 pages and 200 pictures and diagrams. Give you the answers to every problem from tools needed to repairing the model. Covers free-flight and U-Control. Chapters include points and structures, fuselages, wings, engine and accessory mounting, sanding and finishing, assembling, covering, doping and finishing, repairs, etc., etc.

ALL 4 VOLUMES Only 1.25

WE SELL DEALERS TOO!

Did you know that Mod-Ad Agency, Inc., the wholesale affiliate of America's Hobby Center, Inc., is one of the fastest growing jobbers in the business?

We know your problems because we have your problems!

Write for sample catalog, ready for your imprint and our famous 9-point program . . . the reasons why more dealers are doing business with us. Includes our 60-Day return privilege, etc. Special Deals if you are going into business. We ship anywhere in the world.

Write to MOD-AD AGENCY, Inc.
156 WEST 22nd STREET, NEW YORK 11, N. Y.
1067 BROADWAY, BROOKLYN 21, N. Y.

AMERICA'S HOBBY CENTER, Inc. - New York City, Brooklyn, Chicago, San Francisco, Denver, New Orleans

Complete FLYING OUTFITS

WORTH TWICE OUR COMBINATION PRICE!

WE WILL SUPPLY
A complete flying outfit with your own choice of any advertised engine or plane—and save you money. Just order from us or write for price.
IF IT'S ADVERTISED, WE HAVE IT

IT ISN'T OFTEN that you get the chance to buy, at less than half price, a U-Control Plane, Engine and All-Accessory Outfit with your own choice of a well known FACTORY ASSEMBLED ignition or glo engine. Everything carries the famous America's Hobby Center as well as the manufacturer's guarantee.

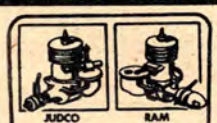
Even if you are a beginner, you won't have trouble building and flying any of these flying outfits, full-size plans of any easy to-build and fly plane, every accessory you will need, complete instructions, etc., etc. If you are an old-timer at building and flying model planes, we don't have to tell you what these bargain outfits are really worth.

Thousands of these complete units have already been sold. They have met with enthusiastic reception because they represent a value unheard of before in the modeling field. The price is so low that we cannot sell to dealers. You really save from $10 to $12 by buying the complete, packaged unit—everything is engineered by experts for a perfect flying combination.

YOUR OWN CHOICE OF ENGINE, PLANE, PLUS ALL ACCESSORIES, INCLUDING: Correct size finished propeller • Presto Engine starter with handle and card • Speed indicator tables • Log Book • Motor cover • Spark or glo plug with gasket • Complete engine instructions • 24 page Gas Engine Theory Manual • Engine adjustment chart • Metal fuel tank and gas line • Metal Battery box • Wilco Quality Coil • 12" Hi-tension lead wire and end clips • 18" insulated ignition wire • Ignition slide switch • Coil holder and mount • Everlast condenser • SAE #70 Oil • 4 ignition wiring lugs • 2 plane identification tags • 72 insignias • GIANT book on Control-liners, How to build and fly them • Cement • Sandpaper • Metal bellcrank with bolt, nut and washer • Elevator horn • Elevator hinges • Lead-in wire • Push-rod wire • U-Control handle • 100 ft. U-Control stainless steel wire & reel • Membership in Modelcrafters of America • 128 pg 2-color catalog • Postage • Packing • Insurance. Ignition parts not needed with glo-engine not included. You can substitute your own choice of plane or motor of equal value.

YOU WON'T GET OTHER BARGAINS LIKE THESE!

BUZZ Ignition or glo
$8.50


JUDCO Ignition or glo — RAM Ignition or glo
YOUR CHOICE $10.00

McCOY 19 GLO — THOR Ignition — CAMERON 19 GLO
YOUR CHOICE $12.50

O.K. 29 GLO McCOY 19 R.M. GLO McCOY 29 GLO — O&R 23 GLO FORSTER 29 or 31 GLO
YOUR CHOICE $13.50

O&R Ignition or glo — PHANTOM ignition or glo
YOUR CHOICE $15.00

PLUS TRAIL BLAZER

TRAIL BLAZER Model Plane with carved lower fuselage-half, fully formed aluminum upper half. Balsa sheet wing, no tissue used. Balsa tail surfaces, plywood engine mount. Schematic drawings with step-by-step plans. Rubber wheels, detail paint schemes. 24" wingspan.

PLUS ALL ACCESSORIES LISTED ABOVE

COMPLETE RADIO CONTROL OUTFIT
$75.00
(Shipped Express Collect Only)

LOWEST PRICE IN THE COUNTRY
No license required—Worth Plenty More
Nothing Else to Buy

RADIO EQUIPMENT

Super Aerotrol Receiver-Transmitter - Antenna - Escapement - Milliameter-All Tubes-All Batteries. (ALL COMPLETELY ASSEMBLED — NOT KITS) *PLUS* Full Instructions.

PLANE

54" Berkeley BOOT-STRAPS "A" Radio Control. Features removable radio unit, tricycle gear, split rudder for trim and radio control. PREFABRICATED. Weight 36 oz. equipped with radio unit and batteries. *PLUS* clear, yellow and blue dope, cement, sandpaper, plans, instructions, etc.

MOTOR

O.K. Cub .099 Engine, propeller, tank tubing, wire, plug clip, *PLUS* Starting battery, pint of fuel, Glo Engine Handbook, etc.

NOTHING ELSE TO BUY

NEW .099 UNITS

Includes all 3 items

For ease of assembly, for trouble-less operation and for real effortless U-Control flying, these units are the answer to the modeler's dream. Even the beginner will have no trouble in assembling the outfit in one evening and be completely ready to fly the next morning.

1 *You get your choice of*
McCOY 9 | O.K. CUB .099

2 *PLUS* Your choice of 2 completely prefabricated kits
18" Sport Racer U-CONTROL | Powerhouse 33 FREEFLIGHT

3 *Plus all accessories*

COST ONLY McCoy 9 Glo Outfit $10.95
O K Cub 099 Outfit $9.95

AA FLYING OUTFITS

These are the new pint-size glo engines that are so tiny (1 to 1½ ounces) but develop plenty of power for free-flight or U-control flying.

Your own choice

INFANT or CUB .049 $7.25 — Spitzy Sr. $7.75 — CUB .074 K. & B. .049 WASP $8.25

Plus your choice of planes: All planes prefabricated, easy to build and fly

Powerhouse free-flight — Circle King 30" U-control — Puddle Jumper 19" U-control

Plus all accessories

BARGAIN OUTFIT

One of the biggest bargains we have ever offered. Over $10.00 of merchandise for only $7.50.

1 *YOUR CHOICE OF*
SPITZY .045 SENIOR *or* O.K. CUB .049

2 *PLUS* your choice of 4 prefabricated Scientific 22" span u-control planes.

ARRONCA SEDAN — CESSNA — PIPER CUB — STINSON VOYAGER

3 *PLUS ALL ACCESSORIES*

COST ONLY $7.50

READY TO FLY

These complete outfits don't give you the fun of building. They are ready-to-operate. All the fun's in the flying. All you'll need in addition is fuel and battery. — Nothing to Build

AEROMITE $9.95
A really beautiful red plastic job, 17" Wingspan with an AA Glo engine, prop spinner, tank, etc., already installed. Shock-absorbing spring-steel landing gear. Jim Walker U-control for precision and stunt flying, plastic control handle, nylon control cord.

AJ FIREBABY $7.50
Beautifully finished and painted, even fuel-proofed. 19" span. Includes new "slow-motion" propeller and engine.

AJ FIREBABY BIPLANE $9.75
It's a terrific stunt ship — this biplane version of the famous Firebaby. 19" span, painted and fuel-proofed. Ready-to-fly, complete with Supercharged Royal Spitfire engine.

DUSTER $10.95
True scale bi-plane u-control model of the type used to crop-dust, stunt and train many pilots. Includes everything including dusting tube, pilot etc. etc. plus Spitzy Senior engine. Beautifully finished in yellow and blue. 15"

F45 $9.95
Swept wing supersonic fighter. Completely ready to fly 20" u-control model designed for the novice or the champ. Includes Spitzy Senior engine, pilot, canopy, rubber wheels, etc. Beautifully finished in silver.

F65 $11.95
Super Sonic Fighter. Big swept wing U-control job powered by Royal Spitfire .065 engine. Another Mel Anderson beauty. Includes wing tanks, machine guns, rockets, etc. 28" wingspan.

YANK 23½" — **$5.95 CHOICE OF** — **HAWK 27"**
Equipped with O.K. .039 and all accessories. All balsa free-flight, championship models. Top notch performers.

SOLDIERS! SAILORS! MARINES!
Orders placed through us get special attention. We understand your problems and take special care of your orders.

$7.95 **COMPLETE RACE CAR COMBINATION OUTFIT**
NEW! Scientific's "HALF-pint" race car, complete with direct drive PLUS O.K.049 engine PLUS all needed accessories. Five minutes after you open the package, you can race this car on any smooth surface, even your own backyard or cellar. Speeds over 40 miles per hour. COMPLETE except for fuel and battery. Car alone $3.95.

How To Order Send remittance in full. No Stamps, no C.O.D.'s. Address your order to us at your nearest branch office.

- Dept. TC-73, 156 West 22nd St., New York 11, New York
- Dept. TC-73, 1065 Broadway, Brooklyn 21, N. Y.
- Dept. TC-73, 55 E. Washington Street, Chicago 2, Illinois
- Dept. TC-73, Rm. 230, 742 Market St., San Francisco 2, California
- Dept. TC-73, Rm. 306, 427 Carondelet St., New Orleans, La.
- Dept. TC-73, 965 Gas & Electric Bldg., Denver 2, Colorado

America's Hobby Center INC

OVER A GENERATION OF FAIR DEALING GUARANTEES YOUR SATISFACTION

AVIATION INDUSTRY needs TRAINED MEN and needs them badly — NOW

AVIATION

offers you an important

CAREER

Exceptional Opportunities with TOP PAY — await young men, who are qualified, in today's LONG RANGE AVIATION PROGRAM.

Establish yourself NOW — qualify with CAL-AERO leadership training in:

AERONAUTICAL ENGINEERING
MASTER AVIATION MECHANICS
JET ENGINE MECHANICS

MAXIMUM TRAINING IN MINIMUM TIME

Step right into a good Aviation Job without break-in, upon graduation ...at TOP PAY.

CAL-AERO GRADS ARE IN HEAVY DEMAND

Recommendations

Since 1929 — 10,000 successful civilian graduates in all phases of Aviation — 26,000 pilots & 8500 technicians trained for U. S. Military Forces ... Engineering Graduates eligible for OFFICER CANDIDATE, AIR FORCE & NAVAL CADETS. Approvals: E.C.P.D. — Nat'l Council of Technical Schools — Calif. Bd. of Education — U.S. Immigration Service — Aircraft Industry — Approved for Veterans — and again training technicians for the U.S. Air Force.

What better recommendation could a school have?

MAIL THIS COUPON *Today!*

CAL-AERO TECHNICAL INSTITUTE

GRAND CENTRAL AIR TERMINAL
GLENDALE 1, CALIFORNIA

Please send full information & free catalog, immediately

☐ AERONAUTICAL ENGINEERING
☐ MASTER AVIATION MECHANICS
☐ JET ENGINE MECHANICS

HOME STUDY COURSES
☐ Aeronautical Drafting
☐ Aircraft Blueprint Reading
☐ Stress Analysis and Design

NAME AGE

ADDRESS

CITY ZONE STATE

High School Attended Graduated Yes ☐ No ☐
AT 7 Check one: ☐ Veteran ☐ Non-Veteran

Test flight with stick model by D. J. Rosenberg at a Plymouth meet. Data: Rolli II, Super XX, K-2 & 1/250 at F.8. Developed in Microdol, printed on Kodabromide. But to whom do we pay $5?

Pan Am turns modelers into movie stars

■ There's a brand-new set of movie stars soon to burst upon the American public. Instead of whistling at Marilyn Monroe, movie goers will soon be shouting for Lew Mahieu; rather than applaud Paul Douglas, they'll be screaming for Paul Gilliam; look for Sal Taibi to replace Robert Taylor in the hearts of millions; Howie ("Milkman") Robinson is about to take over where Edward G. left off; and AT's

William R. "Bill" Enyart, ex-pres. of NAA and FAI and detailed Wright "Flier" model covered with fabric from original plane presented to him by Orville Wright. WRE was early AMA booster.

Dick Everett may oust Dick Powell.

The reason for it all? "From Little Wings," the grand new color movie released by Pan American World Airways. As you might expect there's some mention made of the PAA-Load event, but the entire sound movie is so well put together all phases of contest activity are covered.

Just wait till you see Parnell Schoenky flying his microfilm indoor endurance in the Santa Ana, Calif., dirigible dock . . . or Bill Effinger and young Boikley Bill flying PAA-Load . . . and the ROW shots made at the Nationals—really spectacular.

You'll want to see "From Little Wings." It does a fine job of explaining what model aviation is all about to those who've never seen a model. Your club, school, the civic and service organizations in your community, all will find the 16mm 13½ minute FLW wonderful entertainment. For info on securing a copy for local showings contact George Gardner, Educational Director, Pan American World Airways, 28-19 Bridge Plaza North, Long Island City, N.Y.

Down in Atlanta what do the Journal and Constitution photogs do when assignments slacken off? Tom Aldred gives you a general idea. Photo by his fellow photographer Dallas Buck.

Mr. Gardner was recently in Europe and as a result we can expect a rash of new payload-lifting contests in both England and on the Continent.

Hiller Hops into Model 'Copter Picture. A completely new event for flying model helicopters in annual national competition will be sponsored by Hiller Helicopters, according to an announcement by Stanley Hiller Jr., president of HH and a former model builder.

Winner of the event, which for the first time will be incorporated in the official AMA National Model Airplane Contest at Willow Grove, Pa., will be awarded the Hiller Trophy, a newly created permanent three-foot affair crowned with a model of the Da Vinci helicopter, forerunner of all rotary-wing designs.

This is the first time a major trophy or national competition for flying model helicopters has been established; the new event is planned to be international in scope if successful in the United States.

(*Continued on page* 16)

Sendai, Japan—Miss Sadako Ishiyama is outstretched by the 83-inch span of Army PFC Eugene W. Mayfield's 4-engine U/C bomber model. Took 4 months to build; girl helped.

YOU WON'T GET OTHER BARGAINS LIKE THESE!

Believe it or not!

Brand new engine
TWO (2) PLANES
All accessories

$4.98 With Cub .049 engine $5.98

$4.98 COMPLETE FLYING OUTFIT **$4.98**

WITH **TWO** PLANES

YOU GET A PERFECTLY MATCHED $10.00 OUTFIT FOR ONLY $4.98

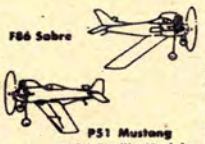
Mel Anderson's
SPITZY .045

EASY STARTING. FULL GUARANTY. LONG LASTING.

Including prop, glo plug, clip, wrench, mounting bolts and nuts.

PLUS

Scientific's NEW
2 in 1 kits



18" Profile Models.

U.C. Prefabricated, formed landing gear. Less than one hour to build.

PLUS

Every plane and engine accessory for building and flying. Rubber wheels, authentic decals, hinges, bellcrank, control handle, flying lines, cement, Glo Engine Handbook, Giant book on building and flying. Presto engine starter, motor cover, log book, etc., etc.

EVERYTHING!!
Except battery & fuel

STILL AVAILABLE!!

5 ACES OUTFIT

AHC'S FAMOUS COMPLETE COMBO
Spitzy .045 Engine

PLUS: Your choice of any of these Scientific prefab 22" U. C. planes: Aeronca Sedan, Cessna, Piper Cub, Stinson.

PLUS: All needed accessories as included in our other outfits. Everything but battery and fuel.

A $10.00 VALUE

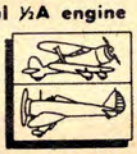
With Spitzy .045 Engine $5.55
With Cub .039 Engine 5.95

A DELUXE BARGAIN COMBO

ROYAL SPITFIRE .065
Most Powerful ½A engine

PLUS Your choice of

BEECHCRAFT 17
or
BOEING P-26A



Scientific's 16" & 18" wingspan control-line models. Extra deluxe kits. PERFECTLY and COMPLETELY PREFABRICATED. Beautiful models you will be proud to fly—and a cinch to build in only one evening.

PLUS

EVERY accessory to build and fly except dope, fuel and battery. INCLUDED are matched propeller, tank and fuel line, glo plug, connecting clip and wire, wrench, motor mounts, mounting bolts and nuts, flying wire and reel, control handle, motor cover, identification tags, Presto engine starter, all hardware, bellcrank, elevator horn, hinges, sandpaper, cement, rubber wheels, decals, lead-out and pushrod wire, formed landing gear, engine instructions, full-size plane plans and instructions, log book, speed indicator, PLUS Glo Engine Handbook, giant book on Control-liners, PLUS membership in Modelcrafters of American, postage, packing, insurance and 128 page 2-color hobby catalog.

BEAT THIS PRICE IF YOU CAN A $15.00 VALUE FOR **$9.95**

ENGINE TRADE-IN SERVICE

While America's Hobby Center, Inc. does not sell used engines, we have a constant request from schools, clubs and overseas soldiers for second-hand engines for experimental work.

If you have a used engine, we will be glad to accept it in trade for any merchandise (motors, planes, boats, accessories, etc.) except Flying Outfits and a few other exceptions, listed in our ads or catalog. Just send in your engine (with your name and address) as the following schedule indicates:

Your old Engine PLUS
$3.75 = $5.00
7.50 = 10.00
11.25 = 15.00
15.00 = 20.00
22.50 = 30.00
} Credit towards your Purchase

We will match any offer in this magazine. Just enclose their ad.

You will receive the usual free premiums, subscriptions, etc.

EVERYTHING in this magazine can be ordered from A.H.C.

N. Y. CITY MODELERS

TWO STORES TO SERVE YOU!
Largest stock in the country at either of our two stores
156 W. 22nd St., New York City
1065 Broadway, Brooklyn, N. Y.

Experts on hand to help you with your problems. Complete stock including engine parts and service at both stores

1. One year subscription to Model Airplane News, Air Trails and Flying Models or its equivalent value to our regular customers.
2. 14-Day Money Back Guarantee on unused purchases.
3. No postage or packing charges on orders of over $1.00 (include 25c if order is under $1.00) — we insure safe delivery anywhere in the world.
4. 24 Hour service. Mail addresses in Chicago, Denver, New Orleans and San Francisco, which will airmail your orders to our N. Y. office for prompt shipment.
5. Most complete model stock in America—gas, rubber, solid, etc., etc. If it's advertised, we can usually supply it.
6. Competent understanding of your modeling problems.
7. No "minimum" orders. Any order is welcome.
8. With gas motors, 50 ITEMS WORTH OVER $7.00 AT NO EXTRA COST.
9. Rubber wheels, etc., etc., with every gas plane selling for over $1.50. 12 ITEMS WORTH $3.50 AT NO EXTRA COST.
10. Membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY ON YOUR PURCHASES.
11. Illustrated giant 2-color 128 page catalog with every order.

HOW TO ORDER

Send remittance in full. No stamps, no C.O.D.'s. Address your order to us at your nearest branch office. Include 25c extra if order is under $1.00.

America's Hobby Center INC.

156 West 22nd St., New York 11, New York
1065 Broadway, Brooklyn 21, N. Y.
55 E. Washington Street, Chicago 2, Illinois
Rm. 230, 742 Market St., San Francisco 2, California
Rm. 306, 427 Carondelet St., New Orleans, La.
965 Gas & Electric Bldg., Denver 2, Colorado

Please RUSH me the following: DEPT. TC-73,
PLEASE PRINT

Name .....

Street Address ..... Amount Enclosed .....

City ..... Zone ..... State .....

Page	Quantity	Name & Description of Items	Cost Each	Total
➡	ONE ONE ONE	ENGINE TROUBLE TRACER & AID MANUAL SPEED INDICATOR CHARTS FLIGHT LOG BOOK	FREE with each order	
			Total	

24 HOUR SERVICE AT ALL TIMES

Only 25¢ each

Handy WORKBENCH EDITIONS of these famous Winston books (regularly $1.00 each) for only 25 cents each.: ALL FOUR FOR 75 CENTS.

GLO ENGINE HANDBOOK. Tells all about the theory and operation of glo engines ☐

CONTROL LINERS. How to build and fly them. Covers subject from A to Z ☐

GAS MODEL PLANE CONSTRUCTION. The answers to every problem you will ever meet. ☐

MODEL GAS ENGINE HANDBOOK. All about ignition engines. ☐

THE FAMOUS

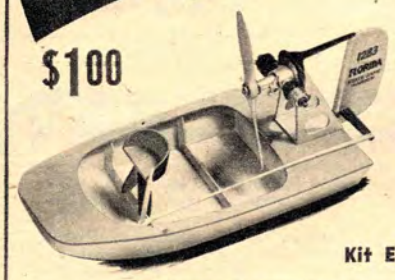
Air Boat

OF THE

FLORIDA EVERGLADES

A BLUE RIBBON MODEL AS FEATURED BY AIR TRAILS

$1.00



Kit E-2

Build this exciting NEW Power Model. Runs with Gas or Electric Motor.

Cavacraft

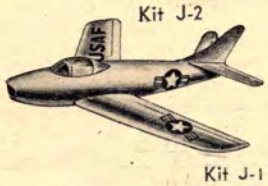
AUTHENTIC SOLID SCALE MODELS

World War I **SPAD** .50

Kit S-9

Russian **MIG-15** .75

Kit J-2



F-86 Sabre .75

Kit J-1

Kit E-1

Snorkel Submarine .75

Other Models not Illustrated

S-1 Mustang	$.50	S-7 Cessna	$.50
S-2 S.E.5.	.50	R-1 Dirt Track Race Car	.60
S-3 Piper Cub	.50	R-2 Bluebird Racer	.60
S-4 Ercoupe	.50	RB-3 Cava-jet Race Car	.75
S-5 Taylorcraft	.50	S-8 Fokker Tripe	.50
S-6 Navion	.50		

2045-47 N. TRENTON AVE.
PHILADELPHIA, PA.

You'll see this poster everywhere during June

How about it, gang—let's all get together and sign up the "Old Man" as a

member of your model club and start him off right as a fellow modeler. We'll bet

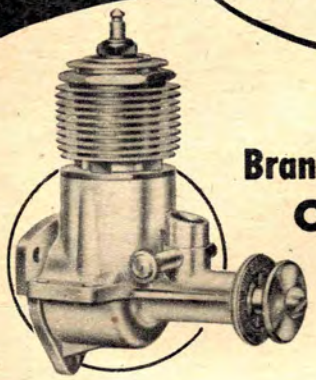
a buck that he'll surprise you with his model building abilities! Talk it over with

Mom and the rest of the family and decide just what phase of hobby modeling will

appeal most to Pop: non-flying scale, free-flight, control line stunt, scale or speed, radio

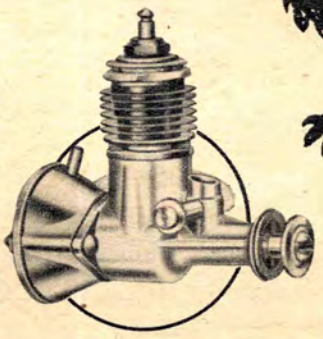
control, boats, cars. Get him going!

OK ...Bears Down on Price! ...Ups Power and Performance!



Brand New Class A Displacement!
OK CUB .14

Requested by leading plane designers. Light — only 2¾ oz. Souped-up power — 3,000 to 15,000 RPM. For free flight, U-control and R/C flying. **$8.95**



Top Performer in ½A Class!
OK CUB .049X

Combination Package

Companion to the famous .049 Cub. Shorter stroke and larger bore deliver higher output. Package includes assembled engine, matched prop, extra rear cover, fuel tank, neoprene tubing. **$6.25** Complete

Complete Power Plants at Low, Low Prices!

OK CUB Combination Packages

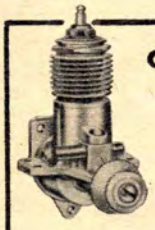
Get an OK Cub Combination Package in any of 4 displacements and enjoy the best in value, power and performance. Each package contains assembled engine, prop and fuel tank.

CUB .039 . . . $4.95 **CUB .074 . . . $6.75**
CUB .049 . . . 5.75 **CUB .099 . . . 7.75**

OK .049 Power Kit

A $6.15 value — assemble it yourself and save $1.20!

$4.95



Outstanding ½-A

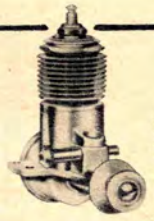
Beginner's choice — rugged — easy to start.

OK .049 CUB $5.25

Unmatched

for stunt and speed flying.

OK .074 CUB $5.95



Sensational

for powerful performance in Class A.

OK CUB .099 . . . $6.95

For Championship Performance!

OK GLOW FUEL

Ideal for breaking in glow plug engines. Methanol base heavily fortified with nitrates. Won't corrode, gum or varnish. Gives easier starting, smoother operation, higher speeds. For all OK's and engines of similar compression ratios. Full Pint **85c**

Quicker Starting, Faster Accelerating!

OK GLOW PLUGS

Long-lasting platinum glow element assures easy starting, higher speeds. ¼-32 longs and shorts for all engines. **59c**

See your Dealer or Write Direct: **HERKIMER Tool & Model Works** 78 Harter Street Herkimer, N. Y.

Now that you are home, what are you planning to do? Perhaps you were in aviation during your time in the service. You have probably secured a basic education in aviation. Specialized training, added to the knowledge you possess, can speed you on your way to success.

SPARTAN can provide you with the best aeronautical training available, backed by 25 years successfully training civilian and military personnel.

Your best bet is to get complete information from SPARTAN right away. If at all possible for you to do so, we suggest that you visit SPARTAN—as well as other leading aviation schools. See what each has to offer you in the quality of teaching personnel, the training equipment, the classrooms and buildings and the background of experience. If you consider all — you will choose SPARTAN.

SPARTAN 25th ANNIVERSARY 1928 ★ 1953

SPARTAN
A UNIVERSITY OF AVIATION

SCHOOL of AERONAUTICS — COLLEGE of ENGINEERING
MAXWELL W. BALFOUR, DIRECTOR — ADDRESS DEPT. AT-73

TULSA, OKLAHOMA

No Correspondence Courses

MARK AND MAIL NOW

Maxwell W. Balfour, Director
Spartan School of Aeronautics Dept. AT-73
Tulsa, Oklahoma
Please send your free Catalog immediately.

Name_____ Age____
Address_____
City_____ State____

Indicate which of these branches interests you.
☐ Flight ☐ Instruments ☐ Crop Dusting
☐ Mechanics ☐ Aeronautical Engineering
☐ Radio ☐ Airline Maintenance Engineering
☐ Meteorology ☐ Flight Engineer

Spartan is approved for training under the G. I. Bill of Rights

AIR NOTES

Security Slip Reveals F-99 as Boeing Guided Missile

INADVERTENTLY released by the Air Force were data and picture of Bomarc F-99 guided missile powered by a rocket and two ramjet engines. The missile is in the pilotless fighter class, probably taking off from ground and automatically seeking target. It was developed by Boeing.

★ ★ ★

BELL X-1A, larger and heavier sister ship of first U. S. supersonic research plane, successfully made test flights piloted by Bell's test pilot Jean L. "Skip" Ziegler. Like its predecessor it is carried aloft strapped beneath the B-29 mother ship. . . . LOCKHEED AIRCRAFT CORP. established Lockheed Leadership Fund to finance 20 four-year college scholarships to attract more talented young Americans into engineering and industry. At least 15 colleges and universities to participate in plan. Fifteen awards will be offered in nation-wide competition conducted by participating schools. Five others will be reserved for sons and daughters of Lockheed employees, with winners attending the college and university of their own choice to study in some field applicable to the aircraft industry. . . . FLEET of Convair R3Y-1 Tradewind transport seaplanes will be ready for trans-Pacific Navy service in 1954.

★ ★ ★

TUBELESS TIRES for use in aircraft developed by B. F. Goodrich. First plane so equipped is Navy's Grumman F9F-6 Cougar on which all tests were conducted. Main landing gear tires are 24″x5.5″ in size and inflate to pressure of 300 lbs. Nose wheel tire is 18″x5.5″, inflated to 175 lbs. REPUBLIC AVIATION CO. built and delivered over 4000 F-84 Thunderjets since production began in 1946. . . . F-94C STARFIRE jet interceptors will be equipped with shatter-proof transparent canopies.

★ ★ ★

FOLLAND AIRCRAFT CO. of England designing a very light utility supersonic jet fighter. . . . THE GLENN L. MARTIN CO. has been awarded a development contract for high-speed jet-powered seaplane, radically different from anything yet produced in this line. Design bears company designation of Model 275, the Seamaster. . . . AN UNDISCLOSED number of North American F-100 jet fighters have been ordered by the Air Force. . . . AUSTRALIA has designed an all-purpose day and night jet interceptor, considered by some experts to be superior to anything else of its type in the world.—A. D.

NEW ELECTRONIC device developed by Bendix Radio gives continuous instrument panel measurement of distance between plane and ground beacons. Called DME (Distance Measuring Equipment), it is currently scheduled for use on commercial and executive type aircraft; may yet have its greatest application in jet aircraft, where due to high speed and high fuel consumption, accurate timing of descent is exceptionally important.

★ ★ ★

PIONEER PARACHUTE Co. acquired commercial rights to a new type parachute capable of recoveries at high subsonic speeds. Originally developed by Dr. H. G. Heinrich of Wright-Patterson Field, chute is equipped with pockets to reduce opening shock and give stability during descent. . . . CONVAIR-LINER 340 purchased by Philippine Air Lines ferried to Manila. Plane was equipped with extra fuel tanks flown via Honolulu, Wake Island and Guam, total distance of 7951 miles. . . . RUMOR says Lockheed F-94C Starfire has exceeded speed of sound on several occasions.

★ ★ ★

ALL WOMAN Transcontinental Air Race to take place on July 3, 1953. Will start from Lawrence Municipal Airport, Lawrence, Mass., and end at Long Beach, Calif., airport.

★ ★ ★

CHILEAN AIR FORCE purchased eight de Havilland Beavers from the de Havilland company of Canada. . . . PIPER TRIPACERS for 1953 are powered by 135 hp Lycoming engines; other improvements are increased cabin space, better upholstering, larger baggage compartment and a redesigned instrument panel readily adaptable to almost any combination of instruments. . . .

★ ★ ★

REGULUS, guided missile manufactured by Chance Vought, Dallas, Texas, is shown below. Was designed to be launched from submarines. U. S. S. Tunny, World War II sub, modified for this purpose and special crew trained in launching. Modifications consisted of installing tank for stowing the Regulus, and special launching rack. Missile to be used against land targets and in amphibious warfare by Navy and Marines. First tests were made from carrier.

TOP FLITE
MODELS INC.

Are the Wrong props keeping you from Flying Success?

HERE'S WHAT WINNERS AT THE '52 NATIONALS USED...

Paul Crowley travelled from Detroit, Mich., to win the PAA ½A Payload Jr. & Sr. with a PAA-Master. Prop: 6/3 Top Flite, Engine: Wasp .049.

Nat Antonioli, San Diego, Cal., took top honors in Cl. ½A Sr. with his Zeek, using a Wasp .049 with a 5¼/4 Power Prop. That big hunk of hardware on handsome Nat's right is the TOP FLITE perpetual trophy. He is holding the TOP FLITE Miniature, which he keeps permanently.

Chickasha, Oklahoma claims credit for Tommy Winton, who took the Control Line Combat Sr. with his All American, using a Fox 35 and a 9/6 Top Flite.

Bill Lofland, Abilene, Texas, is justly proud of his originally designed job that captured the Cl. C Sr. event. Bill wisely used a 10/6 Top Flite with a Torp 32.

That Stuka John Lenderman is holding made him a winner in the Control Line Precision Acrobatic Open. Johnny used a 10/6 Top Flite with a Fox 35 engine.

The ROW Open went to Elmer Scaggs and his Zeek. Elmer, a member of the U.S.A.F., used a Torp 29 with a 10/6 Top Flite.

Here's Bobby Jones of San Gabriel, Cal. Sorry we can't show you the "Bomb" that Bob used to win the Control Line Combat Jr., but we do know he used a 9/6 Top Flite on a Torp 19 power plant.

This proud builder is Thomas Dean, Corpus Christi, Texas. Tom's Great Lakes Trainer won the Control Line Flying Scale Open, using a 10/6 Power Prop on a Dooling 29.

What a team! Mr. & Mrs. Ray Randall, Colma, Cal., shown with their Grumman Sky Rocket. This happy couple took 1st place in the Navy ½A Carrier Control Line event. Engines: Wasp .049's; Props: 5¼/4 Power Props.

Here's Frankie Adams of Newark, Cal., with his All American Sr. Frankie stuck a 10/6 Power Prop on a Fox 29 to win the Control Line Precision Junior Acrobatic event.

A 12/6 Power Prop helped pull Kenneth De Gioiges' Sandy Hogan to victory in the Cl. B Sr. That plane looks about as long as Ken, who hails from Sacramento, Cal.

That's pride you see in Jack Smith's eye, Santa Barbara, Cal. His Amazon 400, pulled by a 10/6 Top Flite, won the Cl. B Open. Did you know that this plane was the only Nationals winner designed by a woman? Our congratulations to Sandra Hill.

12 yr. old Bruce Tune, Los Angeles Cal., looks starry-eyed as he holds his trophy. Bruce won the ROW Jr. with his Smarty, using a 6/3 Top Flite prop on a Torp .049.

Wally Short, Redlands, Cal., won the Cl. ½A Open with his AWOL (that's where his picture is!). Engine: Wasp .049; Prop: 6/3 Power Prop.

Young John Watson, Ft. Des Moines, Iowa, took 1st place in Cl. ½A Jr. Free Flight with his Half-Hay. A 5¼/3 Power Prop provided the pull, harnessed to a Torp.

Fran Uyematsu, Montebello, Cal., has no reason to frown at his Modified Cumulus. With a Torp 19 and a 9/6 Power Prop, this beauty won the PAA Load, Cl. AB Open.

The flashing smile belongs to D. N. Mallory, San Bruno, Cal. His Sophomore 29, powered by a Torp 32 with a 10/6 Top Flite, "brought home the bacon" in the Control Line Combat Open.

PAA Load, Cl. AB Jr.-Sr. honors went to Clinton Merrill, Oildale, Cal. Clint is shown here with his Crowbar . . . he used a 10/3½ Top Flite on an Arden 19.

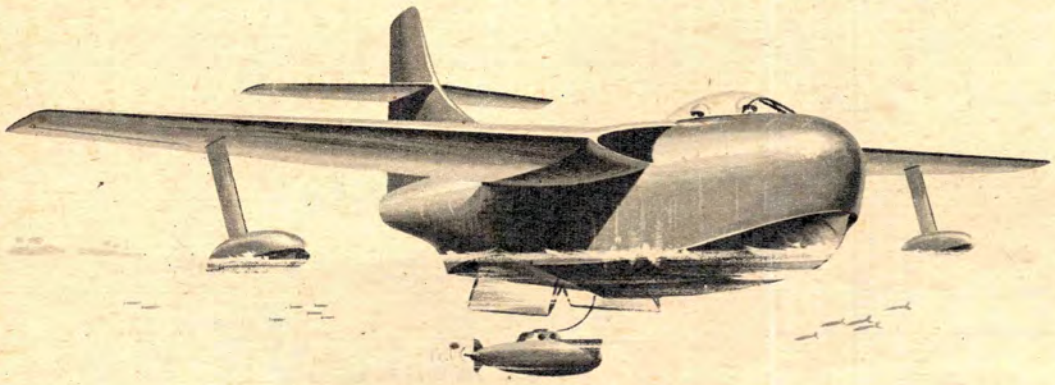
Our sincere condolences to the parents of young Lawrence Miles of Medford, Oregon. Lawrence, winner of the Cl. B Junior event, passed away recently after a brief illness. He used a 10/6 Top Flite on his Modified Cumulus.

LOOK FOR THIS PROP CABINET AT YOUR LOCAL DEALER

Ask for the *FREE* prop charts showing what size prop to use in the average engine-and-airplane combination.

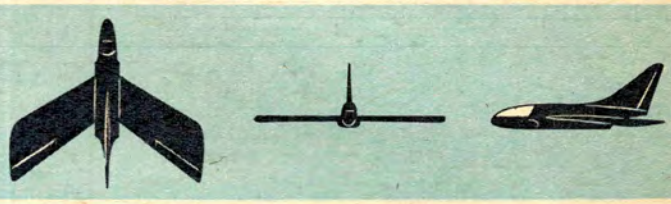
TOP FLITE models, inc., 2635 S. Wabash Ave., Chicago 16, Ill.

1ST AWARD
Submarine-Carrying Jet Flying Boat

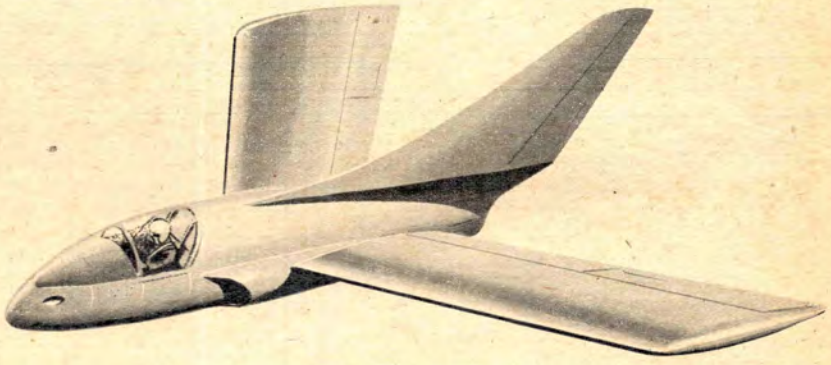


Woodrow W. Block of Hammond, Ind., came up with the most original design this month, a submarine-carrying jet flying boat. The submarine is a one-man job, carried in a special compartment of the flying boat's hull which is sealed off by watertight bulkheads. Inclined rails slide it off backwards into water through special doors in bottom of hull. Jet bomber then flies on.

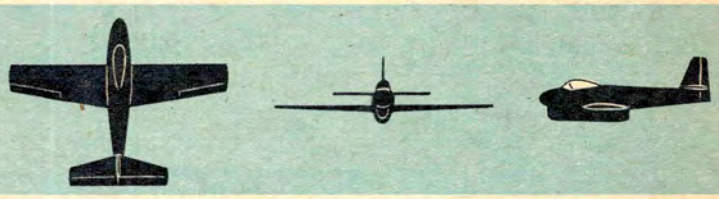
2ND AWARD
High Altitude Ramjet Seaplane Fighter

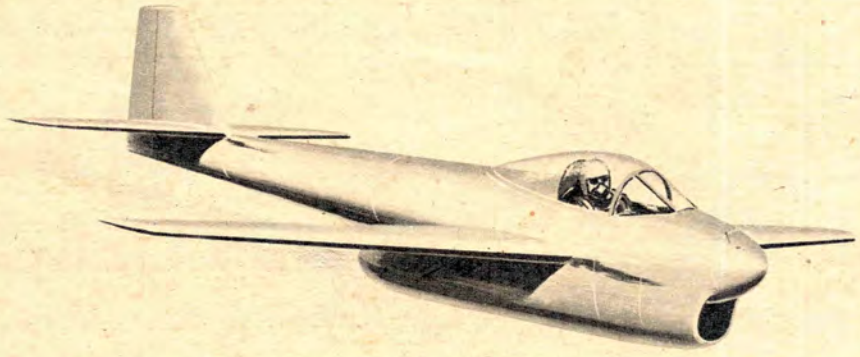


The Sea Demon, an inverse taper wing seaplane jet fighter by James Krasinski of Chicago, Ill. Power is supplied by two ramjet engines, with two auxiliary rockets for take-off to bring plane up to speed where the ramjets are effective. Air intakes close on landing to prevent water getting into ramjets. Retractable hydro-skis are used for take-off and landing. Sharp sweep-back of the wing makes use of horizontal tail unnecessary, the elevators being located in trailing edge of wing. Armament consists of six cannon in underside of the nose and two forward firing rockets. Top speed is 1,500 mph. Span 28 ft.



3RD AWARD
Light Carrier-Borne Jet Attack Plane





Lightweight single-place attack plane by Robert D. Abernathy of Sayville, N. Y. Primary duty is to support landing operations of ground troops from aircraft carrier. Construction simple, to provide easy maintenance and maximum availability. Elevator and rudder control are by cable, aileron by pushrod. All tabs, cockpit canopy and arrester hook are manually operated; flaps operate electrically. Plane is powered by a 1000-lb.-thrust turbojet, giving it a maximum 400-knot speed. Span 36 ft., lgth. 22 ft. 6 in.

AIRMEN OF VISION DESIGN COMPETITION

Rules governing the "aircraft of the future" competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8½x11 inches for the entire three views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on the powerplant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The design may be of any type: commercial aircraft, military planes (fighters, bombers, troop transports), planes of the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of $25. Payment of $5 will go to runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Editors regret that due to large number of entries they cannot enter into any correspondence on Airmen of Vision.

GUILLOW'S

Radio controlled model Trixter BEAM

the newest star in the R/C field

FOR BOTH 465MC AND 27.255MC "Examination Free" FREQUENCIES

SPECIFICATIONS

Wing Span	50.25"
Wing Chord	8.25"
Effective Area	372"
Body Length	35.25"
Flying Weight	36.5 oz.
Wing Loading	14-16 oz.
Power	.09 to .14
Category	Radio & Sport
Ability	Contest & Trainer

Designed and tested by Lou Andrews

A proven model that easily handles the full equipment of the MacNabb 465 receiver, Bonner compound escapement and motor control units. There is plenty of fuselage space for all radio gear, plus working room for your hands.

The Beam is tops in performance and stability. Designed to protect your investment in R/C equipment, yet you will be pleasantly surprised with its exceptionally graceful lines. See it at your local model store and be the first to fly this latest Lou Andrews design.

$6.95

complete with full size plan sheet. Accurate die cut parts. Formed landing gears. Necessary hardware, two colors of covering, and celluloid for windows. Wheels, liquids, receiver, and motor unit not included.

GUILLOW'S TRIXTER Control Line Stunt Models

Designed and tested by Lou Andrews - - -

GUILLOW'S
Trixter PROFILES

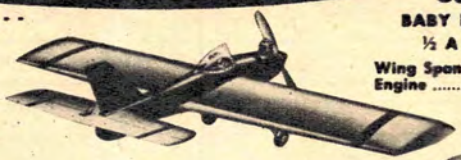
CLASS A · B
Wing Span ..... 32 in.
Engine ..... .19 to .35 disp.

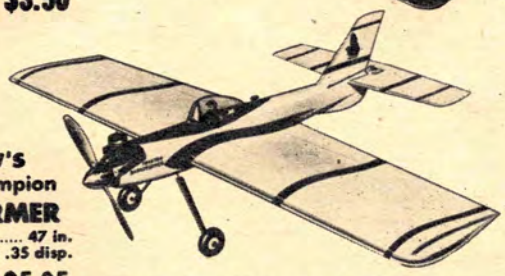
CLASS B · C
Wing Span ..... 38 in.
Engine ..... .29 to .35 disp.

$2.50
$3.50

GUILLOW'S
BABY BARNSTORMER
½ A stunt model
Wing Span ..... 23½ in.
Engine ..... .035 to .049 disp.

$2.95





GUILLOW'S
National Champion
BARNSTORMER
Wing Span ..... 47 in.
Engine ..... .23 to .35 disp.

$5.95

GUILLOW'S
PROFILE TRAINER
Wing Span ..... 32 in.
Engine ..... .19 to .29 disp.

$3.50

Note: Engines and hardware not included in Trixter kits.

SEE YOUR LOCAL DEALER OR SEND DIRECT TO FACTORY. ADDING 25¢ TO ALL MAIL ORDERS

PAUL K. GUILLOW, WAKEFIELD, MASS.

CHECK YOUR FUTURE IN AVIATION

TODAY'S LONG-RANGE AVIATION PROGRAM OFFERS GOLDEN OPPORTUNITIES TO THE YOUNG MEN OF AMERICA
...every major airline, manufacturer and allied industry need qualified, well-trained specialists desperately!

CHECK THE CAREER YOU WANT . . . START ON YOUR WAY TO BIG EARNINGS AND A BRILLIANT, SECURE FUTURE TODAY!

EMBRY-RIDDLE OFFERS YOU COMPLETE 1-YEAR TO 2-YEAR COURSES . . . *TO MEET THIS BIG DEMAND!*

AIRCRAFT & ENGINE MECHANICS Vast numbers of properly trained A & E Mechanics are urgently needed. Our C.A.A. approved school with a quarter-century experience assures your quickest advancement. Embry-Riddle students learn fast with modern equipment, including jet . . . live aircraft.

INSTRUMENT FLYING Embry Riddle offers dual instrument as well as Link Trainer. Navigation, instruments, radio and navigational aids, and instrument flight procedures—all to qualify you as an Instrument Pilot.

COMMERCIAL PILOT Embry-Riddle trained pilots benefit from our years of experience with 30,000 students...the best instructors, up-to-date aircraft, superb year-'round flying weather. Also instrument rating.

A & E COMBINED WITH COMMERCIAL PILOT Airmen with dual pilot-engineering ability are needed by aviation companies and operators. Embry-Riddle combination training offers you the most in your aviation career.

EXECUTIVE PILOT Must have two years of college or equivalent training to enroll. 18-month course. Complete course includes thorough training in Aeronautical Technology, preparation for Commercial Pilot Certificate with Instrument and Multi-engine Ratings and A & E Mechanics Certificate.

COMPLETE FACILITIES IN SOUTH FLORIDA'S PERFECT YEAR-ROUND CLIMATE

Embry-Riddle's home in Miami's famed Aviation Building provides finest training facilities available anywhere. The high regard for Embry-Riddle throughout the Aviation Industry is proved by our thousands of successfully placed graduates.

You, too, can step right into an *exceptional opportunity*...Classes are beginning now...write for complete information TODAY!

CHECK course you are interested in and
MAIL THIS ENTIRE AD to Dean of Admissions—Dept. 97
Embry-Riddle School of Aviation Miami 30, Florida

NAME _____
ADDRESS _____
CITY _____
STATE _____ AGE _____

TRAINING AUTHORIZED UNDER G.I. BILL

TRAIN IN MIAMI • AIR CAPITAL OF THE WORLD

Embry Riddle *International* **SCHOOL OF AVIATION**

Built-In Fine Mesh Filter Screen Protects Your Engine When You Fill Up With a

TIGER FUEL PUMP

Forced Feed
Piston Type Pump
All-Metal Construction
Delivers Fast Steady Fuel Stream
Fine Copper Screen

Special Half Pint Size

● Get a Tiger Fuel Pump. It's a swell deal for your model engine. No more spilling of costly fuel. No waste or muss. No foreign matter to injure your engine and spoil dependable operation. Get a Tiger Fuel Pump with the fine metal filter screen, screw it on any standard fuel can and you're ready to go. Three sizes—half pint, pint and quart. At your hobby dealer.

AT YOUR DEALER

Fits Standard Screw Top Can

Half Pint
Pint
69c

Quart
79c

National MODEL DISTRIBUTORS
2516 N. GREENVIEW AVE. • CHICAGO 14

DOPE CAN

(*Continued from page 8*)

Commissioner Jim. Looks like what Landis was to baseball, Saftig is to aeromodeling. We're speaking of "Commissioner" Jim G. (wonder wot that's fur?) Saftig, Old Man Zilch hisself. Seems that Gentle Jim heads up the model airplane section of the Convair Recreation Association in San Diego. Section club heads are called "Commissioners." The Convair Aeromodelers meet on alternate Thursdays. If you're new to Convair in SD call the Comm. on ext. 229, Plant 2.

Get active in the GOC! The Ground Observer Corps needs volunteer plane spotters—everywhere! Be a plane spotter—work with the Air Force. For information on how you can help and man lookout towers contact your local office of Civilian Defense . . . or write Ground Observers Corps, U. S. Air Force, Washington 25, D. C.

Speaking of Clubs. Fifty or more modelers have banded together in southeast Atlanta, Ga., to form the Flying Rebels. Sponsor is East Atlanta Exchange Club; business meetings are every other Wednesday night at the X-change Club house; alternate weeks are devoted to construction-instruction sessions. Secretary is Tom Aldred, 1340 Ormewood Ave., S. E. Hez an Atlanta Journal photog. . . . Meet the Model Muggs of New Albany, Ind. Bob Baxter is pres. He can be reached c/o Petery-Heden, 415 Pearl St.

Bucks County, Pa., Federation of Model Plane Clubs is expanding at a rapid rate. Now consists of six well organized groups plus many active members-at-large from the Phila. area. Lotsa inter-club activities planned. Although BCFMPC has become synonomous with "team racing," the Federation now has a diversified program which places greater emphasis on the more popular events. Real T/R interest has boiled down to a small but valiant band of diehards. However, the BCF will run off the team race events at the '53 Nationals and will introduce new T/R equipment.

Writes Clarence Wells, "Emphasis is also placed on developing leaders and contest directors from the ranks. We are creating a pool of trained CD's and officials.

Add Winston-Salem, N. C., to your list: Skywriters MAC, Ed Aldridge, sec-treas., 853 Watson Ave. . . . And in the Cleveland area: Flying Tiger Line, Inc. MAC, Frank A. Zigman, pres., 29321 Armadale Rd., Wickliffe, Ohio. Writes Frank: "This newly organized club is sponsored by the world's largest air freight and cargo line; we now have 11 members" . . . F/F, C/L scale and stunt: Lufbery Circleers, Theodore Koblish, sec., 180 S. Orchard St., Wallingsford, Conn.

This-and-That Dept. It's now official: The Bellcranks MAC, c/o Richard W. Horton, 4116 3rd Ave., N. W., Seattle 7, Wash. . . . Reorganized: Linden, N. J., MAC c/o Frank M. Krysiak, Recreation Superintendent, Old City Hall. . . . New: Aviation Club of Tidewater has set up classes in aviation subjects and model building. Open to all enthusiasts over 14 in Tidewater, Va., area. Contact Carl Rickard, 1513 Camden Ave., Portsmouth. . . . Wants copy of Beechcraft 125 plans from old Capitol kit: Paul A. McFadden, 37 W. 99th St., NYC—will pay. . . . For free: Wayne Kent, 606 E. Lincolnway, Valparaiso, Ind., has 500 printed copies of "Summary of Wartime Operations of Republic P-47 Thunderbolts". Hez a Jug fan and is willing to send a copy of the summary sheet to anyone requesting. . . . A/3c George W. Godfrey is with 73rd Stock Control Sq. of USAF at Chateauroux, France. Says modeling is tough there since he is 163 miles from Paris and the "local hobby shop" just don't exist. George, Art Winston of America's Hobby Center tells us that you can get glow fuel, dopes and cements shipped to you from supply houses in the States. You see your CO and get an order to have the stuff shipped NATS. Suggest you talk to your Special Service officer about this or contact Mr. Winston for further info. . . . New address: Olympia, Wash., Miniature Aircraft Club, PO Box 501.

—THE DOPESTER

COMET'S

"NIFTY THREE" of '53!

NEW "M" "FIGHTIN' FLYERS"

E-Z-TO-BUILD
"Struct-O-Speed"

KIT NO. M7—DOUGLAS SKY-KNIGHT F3D-1- Wingspan 14¼ inches; length 12⅝ inches—The Navy's twin-jet long-range carrier-based fighter which uses radar to locate targets. Like all "M" kits, this model has shaped all-balsa Holl-O-Wing, finished plastic parts and bubble canopies, die-cut, ready-to-put-together parts. Realistic decals, easy-to-follow plans —pre-fabed all the way!

$1.00 EACH

KIT NO. M9—NO. AMERICAN MUSTANG F51 — Wingspan 15⅛ inches; length 12¾ inches—Don't sell the Mustang short! Does a great job where jets can't operate; cruising range, 2200 miles. Favorite of many model builders.

KIT NO. M8—GRUMMAN COUGAR F9F-6 — Wingspan 12⅛ inches; length 14¼ inches—A swept-wing Navy jet in the "over 600 mph" class. Contains all the features that make Comet's "M" kits tops in the dollar field, with EZ-to-build Struct-O-Speed construction. Pre-fab to the Nth degree!

Comet has produced the three niftiest surprises of the year — and you'll find them at your Comet dealers now! You've been asking for more of these marvelous "M" kits — here are three brand-new "hot" war planes! The PT Boat that made history in the last war — reproduced in a terrific model! As usual, each of these Comet kits is tops in value! Buy 'em — build 'em — fly 'em — float 'em! And you "plastic" fans — wait 'til you try Comet's great new Paint for Plastics!

NEW! PT BOAT

KIT NO. J3—PATROL TORPEDO BOAT Realistic model of famous PT-9—the "Suicide Boats" of World War II. Four torpedo tubes; capable of 50 knots. You'll buy and build it for "romance" and thrills!

75¢

NEW! COMET PAINT for PLASTICS

Another winner! A high-gloss paint, made by a special formula to adhere to plastic surfaces. Will not chip or become brittle with age; "Scotch Tape" won't peel it off! Amazing coverage! 14 colors: Dark Blue, Red, Orange, Yellow, Green, Sky Blue, White, Jet Black, Gray, Rich Gold, Silver, Thinner, Chocolate Brown, Olive Drab. Dries to the touch in 5 min. One coat covers.

Dries to the touch in 5 minutes!

10¢

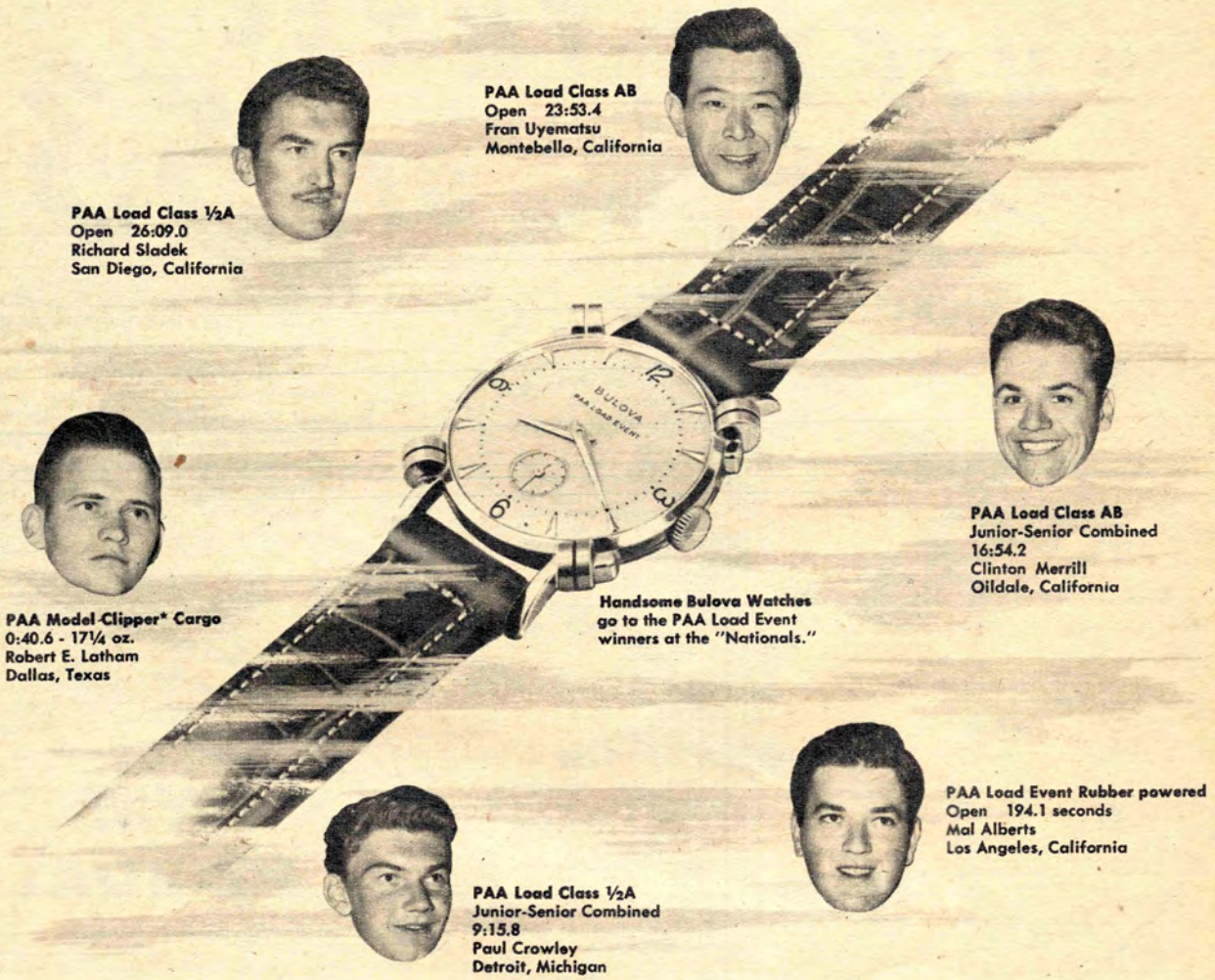
COMET IS THE WORLD'S LARGEST MANUFACTURER OF MODEL AIRPLANE KITS!

Yes — more model builders build more Comet kits than any other. And Comet has the biggest line to choose from — 122 different models — each an authentic scale model. Comet has the manufacturing facilities, the design know-how, and the sales volume, to bring you the best models at the lowest possible prices!

COMET MODEL HOBBYCRAFT, INC.
501 WEST 35th STREET CHICAGO 16, ILLINOIS

Record Racker-Uppers

at the 1952 "Nationals"



PAA Load Class ½A
Open 26:09.0
Richard Sladek
San Diego, California

PAA Load Class AB
Open 23:53.4
Fran Uyematsu
Montebello, California

PAA Load Class AB
Junior-Senior Combined
16:54.2
Clinton Merrill
Oildale, California

PAA Model-Clipper* Cargo
0:40.6 - 17¼ oz.
Robert E. Latham
Dallas, Texas

Handsome Bulova Watches
go to the PAA Load Event
winners at the "Nationals."

PAA Load Event Rubber powered
Open 194.1 seconds
Mal Alberts
Los Angeles, California

PAA Load Class ½A
Junior-Senior Combined
9:15.8
Paul Crowley
Detroit, Michigan

PAA LOAD EVENTS

● These exciting contests provide model flying that brings out the basic purpose of aviation itself—*to carry a payload.*

First sponsored by Pan American in 1948, PAA Load Events are free flight headliners at many local and regional meets—and a highlight of the "Nationals." Why not start your PAA Loader today?

For rules and specifications for 1953, write to: Educational Director, Pan American World Airways, 28-19 Bridge Plaza North, Long Island City 1, New York. *Trade-Mark, Reg. U.S. Pat. Off.

1953 "NATIONALS"

July 27-August 2
U. S. Naval Air Station, Willow Grove, Pa.
(Near Philadelphia)

PAA LOAD EVENT AWARDS at "NATIONALS"

1st—$100 and Bulova watch
2nd—$50 and Bulova watch
3rd, 4th, 5th—Bulova watches
1st to 5th, Rubber powered—Bulova watches

PAN AMERICAN

WORLD'S MOST EXPERIENCED AIRLINE

The Brave Baroness—First Licensed Ladybird

She wrote history in the sky, knowing . . . "Perhaps I shall tempt Fate once too often"

By HARRY HARPER

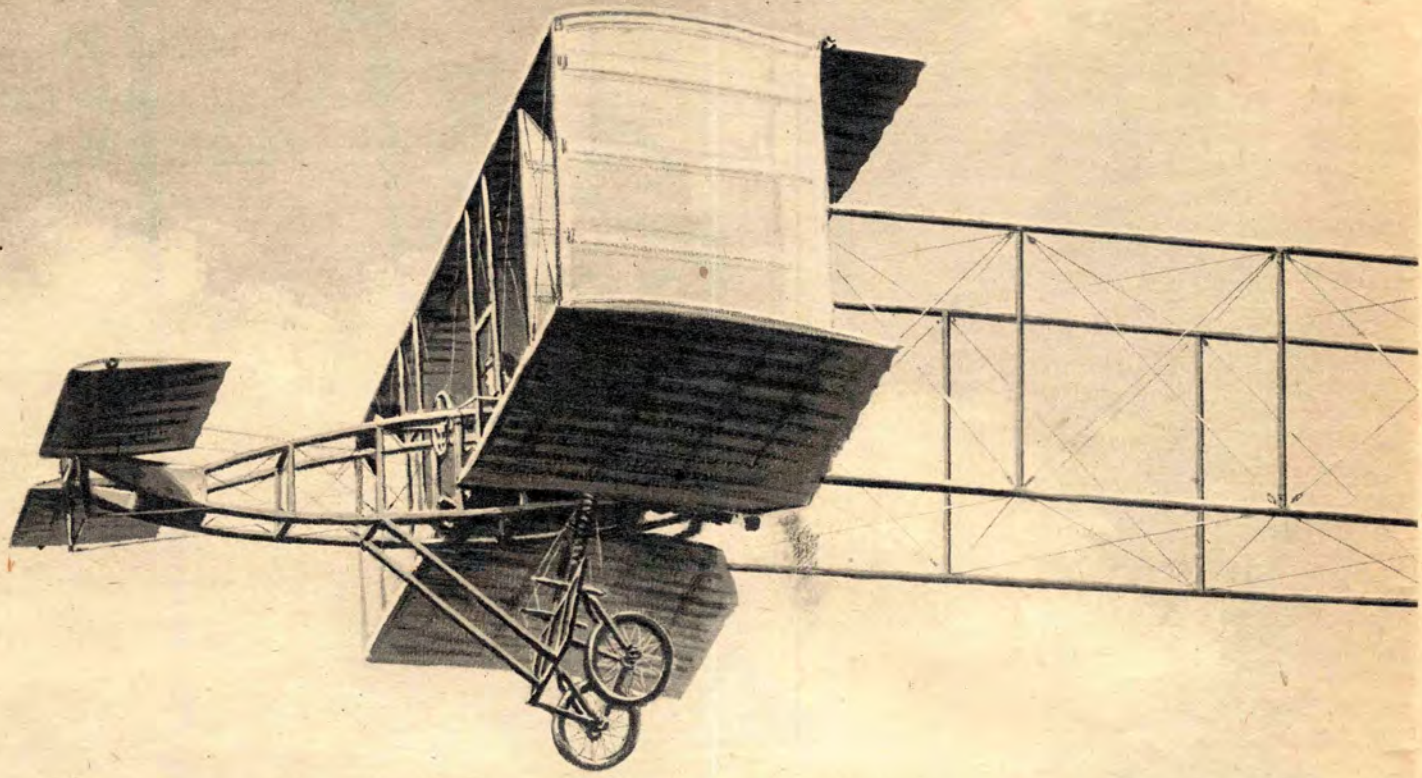
■ In the shed stood an odd-looking contraption. It looked, at a first glance, more like some giant edition of a boy's box-kite than anything else. Projecting out in front was a flat horizontal surface, while a good distance behind the main box-kite surface was another and a smaller kite-shaped structure. In between the wings, which had vertical panels between them, rested a seat for a pilot, while out at the back was a 50-horsepower motor driving a metal propeller.

This apparatus was a Voisin biplane of the current year, 1909—a machine which, so far, only a few of the most daring pioneer airmen had ventured to take up off the ground.

Yet this girl with the quick glance and the dazzling smile, who stood inspecting it with its designer, Charles Voisin, had made up her mind not only to be the first woman to fly such a fearsome monster alone, but also the first woman in the world to make the flights necessary for obtaining an official certificate as an aeroplane pilot. She was the Baroness Raymonde de Laroche.

In Paris her many friends had been pleading with her not to risk her life in such a reckless fashion. They told her that already she was doing enough. Not only was she one of the prettiest and best-dressed of the smart circle of gay young Parisiennes, but she had already made a name for herself as a sculptress, had appeared successfully in several plays. In addition she had astonished even great motor-racing pioneers of their day, such as Farman, Rougier, and Leblon, by the dexterity and daring with which she handled the wheel of some mile-a-minute car.

But all this was not enough for the ebullient young baroness. Just prior to the world's first air meeting at Rheims she had been one of the first women to go up



for a short flight as a passenger in a pioneer aeroplane. And that short flight had in a moment changed all her views and aspirations.

"This is the way we humans are really meant to travel!" she declared enthusiastically. "Swiftly and smoothly through the ocean of the air. All the bumps and vibration of the road are gone. There is no dust. No fatigue. You fly with all beauty and freedom of the birds. This will be my life from now on—the life of the air."

So here she was on this summer morning, climbing up into the pilot's seat of the big Voisin. Anxiously Charles Voisin spoke to her:

"Do nothing at first but drive the machine here and there across the ground. On no account attempt to try to take it into the air."

The baroness merely smiled down at him. As Voisin and his mechanics stood watching with no little concern, she taxied the machine out with perfect confidence. Those early Voisins, when moving on the ground, had a trick of swerving suddenly from one side to the other. Yet the girl in the pilot's seat, by quick, dexterous use of engine controls and rudder, held the plane on a straight course with all the adroitness of any man-master of the air. She then swung it around smoothly at the end of the flying field and came taxiing back. She repeated the performance.

"There you are, Charles!" she cried from the cockpit.

Reproduction of the official certificate granted by the Aero Club of France to the Baroness de Laroche, making her the first licensed woman pilot in the world. In those days aero clubs, acting as agents for F.A.I., did the issuing of all flying licenses.

"And now, my friend, it's time I tried a real flight."

Voisin and his mechanics held up their hands in horror. Flying after only just a few preliminary taxi-ings! But the baroness, laughing, opened up her engine to full throttle and sped away again across the aerodrome. Faster and faster the big Voisin moved. And then, as she drew gently on her elevator control, the baroness felt no further movement from the wheels beneath her, and knew she had left the ground and was actually in the air. Soon she was ten or fifteen feet high! Still operating her controls with a cool, quick precision, she brought the machine down, foot by foot, and ran to a standstill just at the end of the field. After which, turning on the ground again without difficulty, she flew back in a straight line to the sheds.

As Charles Voisin ran to congratulate her, the mechanics standing by the sheds broke into a loud and spontaneous cheer. It was justified. For what they had just seen was one of the first women on record to fly an aeroplane alone. A woman who seemed to know instinctively what to do in the air.

Her chief ambition all along had been to win the honor of becoming the first woman in the world to carry out, under official Aero Club observation, the tests for an aeroplane pilot's certificate. To this end she soon began venturing away from the immediate neighborhood of the flying field to make short cross-country flights. It was at the end of one of these, coming in to alight, that she was guilty of her first small error of judgment. To reach the landing area, according to the direction of the wind, she had to glide in above a row of tall poplar trees. Coming in a foot or so too low, the tailplane of her Voisin barely touched the treetops. This tilted its nose downward, and before she could right it the machine struck the ground in a heavy crash.

Flung from the cockpit, the baroness was lucky in sustaining nothing worse than a shoulder injury. It kept her out of the air for a good many weeks, but she made use of the time in bed by designing a special costume for women pilots to wear in the open cockpits of early-type planes. This consisted of a white woolen motor-hood as headgear, along with a thick white sweater and a neat grey divided skirt.

As soon as she was fit to fly again, her nerve quite unimpaired, she took a Voisin to one of the pioneer air meetings held at Cairo. And here, watched by special observers from the French Aero Club, she realized her ambition of being the first woman in the world to make all the test flights and landings necessary for securing an official aeroplane pilot's certificate—the much-coveted *brevet de pilote.*

To reporters and photographers who thronged round her after she had landed on this historic occasion, she said she thought flying ought to be an ideal sport for women, as it did not rely so much on physical strength as on quickness of hand and eye. When asked about the danger of handling one of these early-type planes, the engines of which often failed without warning in mid-air, to say nothing of structural breakages in which a wing or tailplane might collapse while in flight, she merely shrugged her shoulders and answered:

"Most of us spread the perils of a lifetime over a number of years. Others may pack them into a matter of only a few hours. In any case, whatever is to happen will happen. It may well be that I shall tempt Fate once too often. Who knows? But it is to the air that I have dedicated myself, and I fly always without the slightest fear."

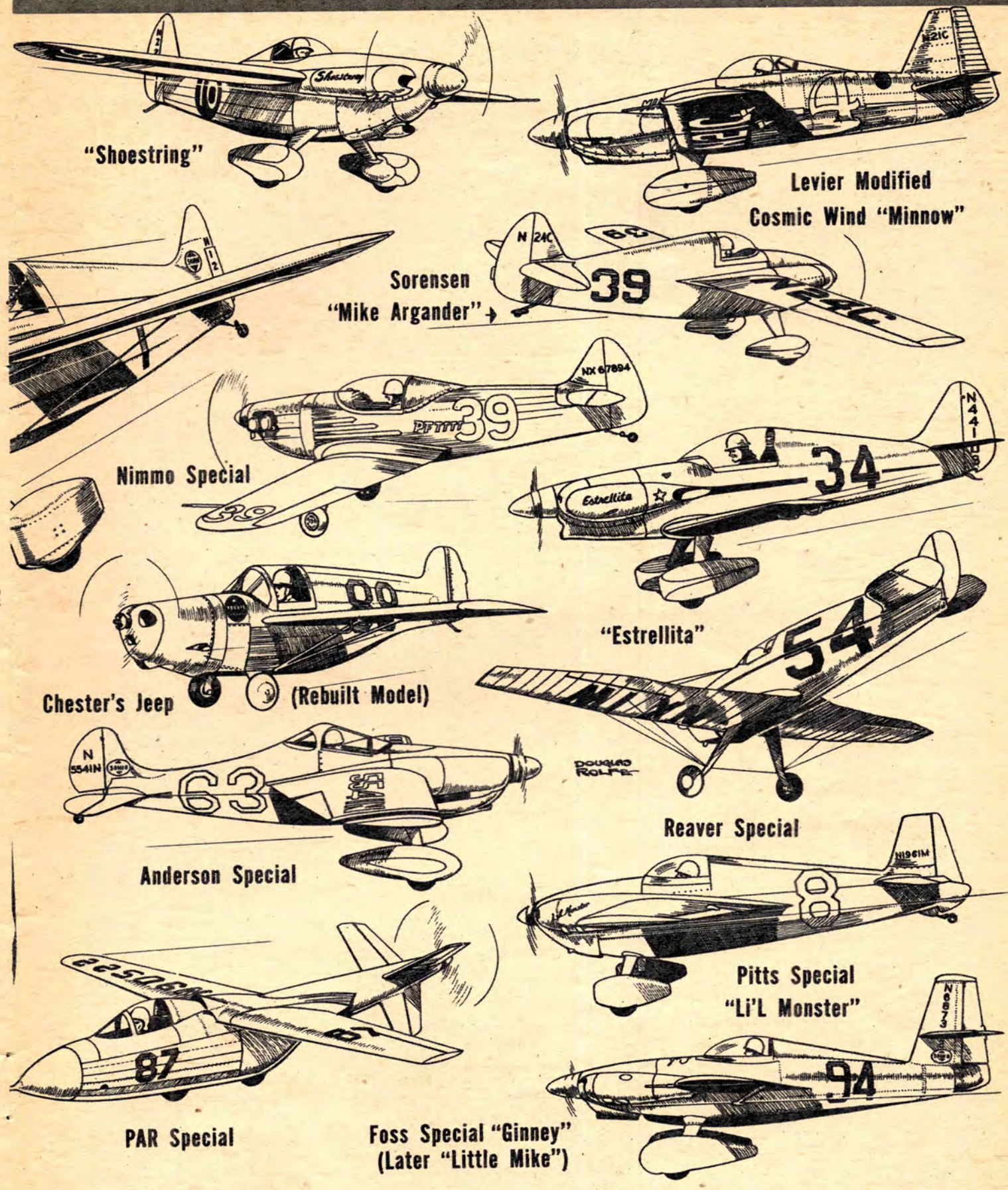
Fly without fear she did, and at the second big international air meeting at Rheims, competing against some of the greatest air champions of their day, she gave displays which won spontaneous (*Continued on page* 56)

AIR PROGRESS

By DOUGLAS ROLFE

GOODYEAR AND CONTINENTAL RACERS. The second postwar National Air Races in Cleveland saw an entirely new class of racing planes take the place of the former Greve Trophy formula. Unlike the 500 cu. in. Greve racers, the tiny speedsters were powered by a 190 cu. in. displacement Continental flat four engine of 85 hp. Built to rigid specifications, they were safer than the small prewar racing planes.

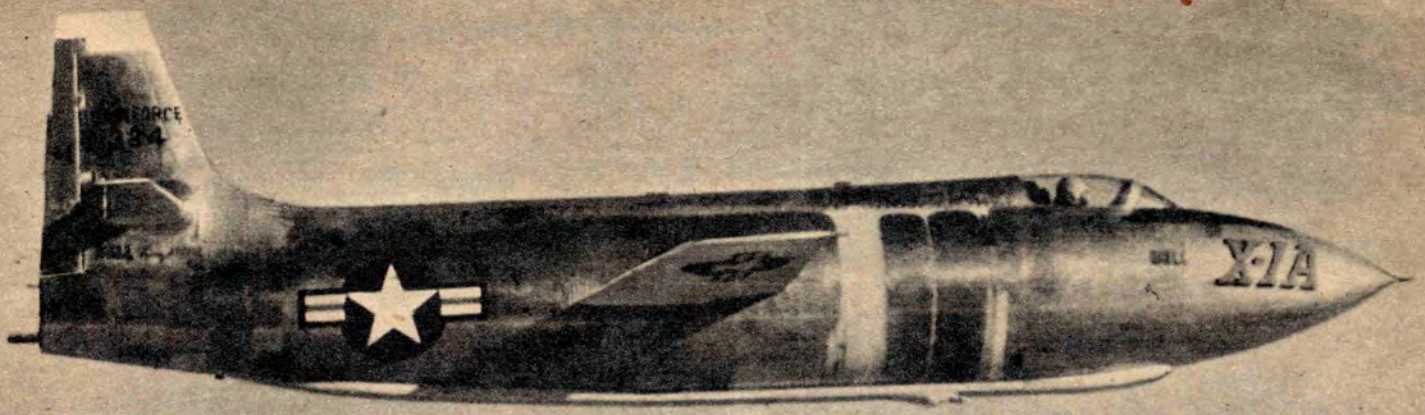
The sponsor of the race at Cleveland was the Goodyear Tire and Rubber Co., which agreed to underwrite the event for three years, beginning with 1947, and awarding each year a sum of $25,000 in addition to a handsome trophy. Continental Motor Corp. had a similar arrangement with the Miami Air Maneuvers, taking over from Goodyear after 1949. In addition, a number of smaller events were also held all over the country under varied sponsorships.



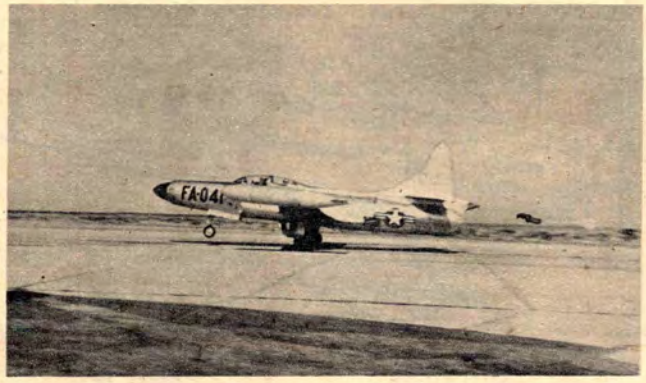
On these pages are presented some of the most notable midget racers, many of which have undergone considerable modification since the debut of pint-size competition. The earlier planes were built and flown by such old-timers as Wittman, Tony LeVier, Art Chester, and the newcomers did not have much chance. But the newcomers learned. A good example is Bill Falck, who in 1952 took second place in Detroit with his Rivets; and John Paul Jones, a two-time winner of the Continental Trophy Race with his Shoestring.

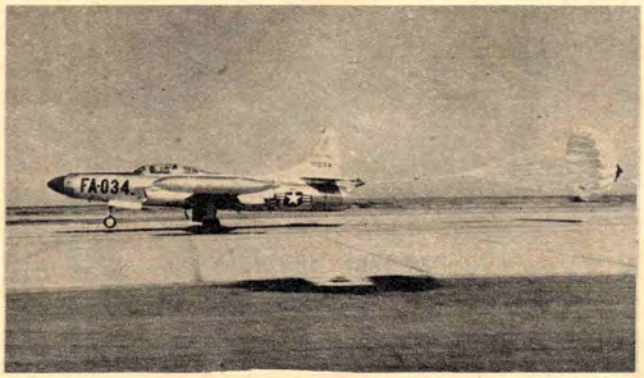
However, in the long run it was the old maestro Steve Wittman and his Bonzo who came out on top after winning the last Continental Trophy race at Detroit, then retiring from aerial racing for good. The fate of midget racing is uncertain since Continental has dropped its sponsorship, but it is hoped that another sponsor will appear to keep this interesting breed of racing planes alive.

The World A-Wing



Bell X-1A, larger sister of supersonic X-1, now undergoing flight tests at Muroc. Powered by an improved Reaction Motors rocket.

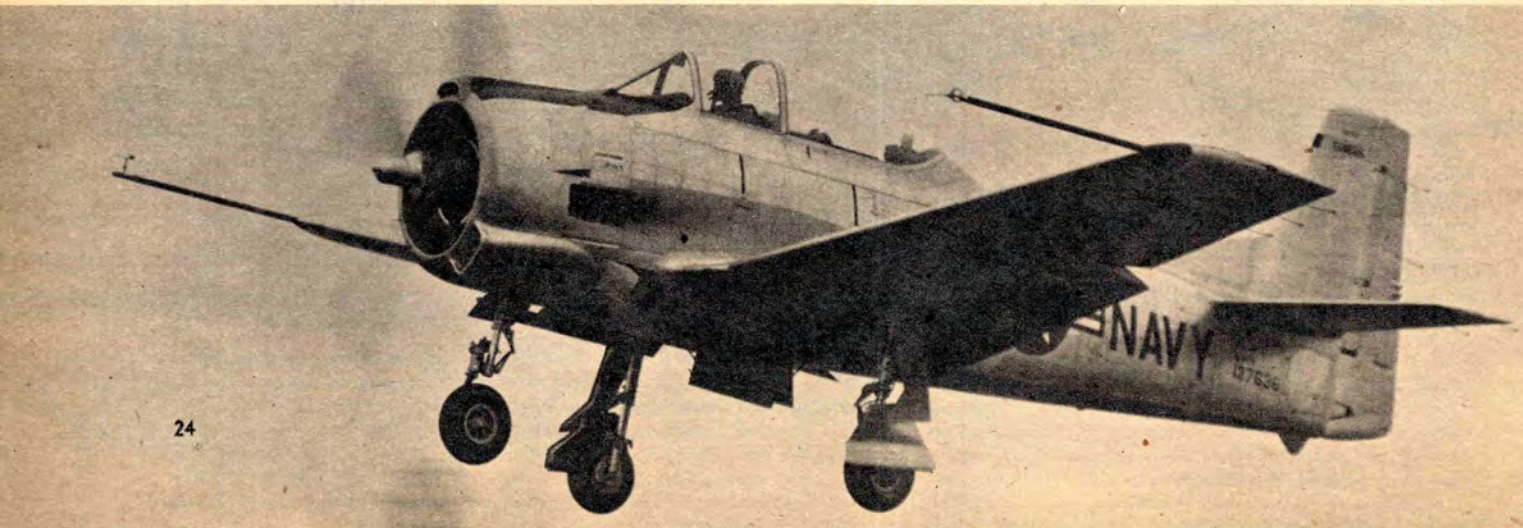




Lockheed F-94C Starfire at moment of landing. Top picture shows pilot chute about to pull out main chute. In bottom photo 16 ft. diameter main chute pops open and slows up fast-landing plane.

Sharp edge of the Sabre: rocket launcher on North American F-86D all-weather interceptor. Contains 24 "Mighty Mouse" 2.75" rockets. When not in use the launcher retracts inside fuselage.

North American T-28B, USAF trainer. More powerful version of earlier model. 1425 hp Wright. Rate of climb 3859 ft. per minute.



Air FORECAST and REVIEW

What Are Missiles? They're suicidal freight-carriers. They have a warhead—an A-bomb or five lbs. of explosive—to carry to the enemy and blow up in his face. To be directed, missiles need guidance; you build in a brain, maybe help 'em part way with extra brains on the ground or in the air nearby. To push them along requires an engine—a rocket, ramjet or turbojet. To wrap this up, they need airframes, with wings or shaped body for lift, fins or control surfaces for stability and steering. They'll do things a plane can't do, take loads a pilot could never stand. They don't have to come back.

How Is a Missile Different from Drones? With a drone, you tell it where to go and how to get there. With a missile, you tell it when to go. It figures out where and how.

What Are We Building? In the U.S., we're concentrating on three types:

Surface-to-surface (*SSM*). These will be the mainstay of future bomber offensives, replace heavy artillery and ground-support aircraft. Big—fighter-plane size—and long-ranging (200 to 5,000 mi.), these will carry A-bombs, seek out enemy cities and troop concentrations, blast them. Speeds will be transonic to high supersonic; engines will be turbojets, ramjets, rockets or combinations of these. Guidance: precise autopilots monitored by star-tracking telescopes, radar mapping, earth's magnetic field. Examples: Martin Matador (AF), Chance Vought Regulus (Navy), Northrop Snark (AF), General Electric Hermes (Army).

Surface-to-air (*SAM*). These are anti-aircraft missiles, will bolster interceptors and flak in the job of area defense. Slim, pencil-shaped, and rocket-powered, these may be 15 or 25 ft. tall, completely portable, fired from anywhere. Speeds will be supersonic; missile will turn on a dime, chase its target and blast it—if the guidance works. Guidance: beam rider first, where missile rides the center of a projected radar beam like a twig in a brook; move the beam, the missile follows. Later types will have active homing, already proved in Fairchild's elderly Lark. With a homer, missile does its own tracking, finds target and hangs on, regardless of evasive action. Examples: Western Electric Nike (Army), John Hopkins Terrier (Navy), Boeing Bomarc (AF).

Air-to-air (*AAM*). These are for fighter armament, may replace the machine guns and cannon now used. Tiny (6 to 10 ft. long, 6 in. diameter), sleek and rocket-powered, they will be carried on a fighter's wings (they're too big now to house inside) and fired against big targets. Initially aimed by airplane direction, a homer system can take over and deliver missile to target. Examples: Sperry Sparrow (Navy), Hughes Falcon (AF).

Who's Building Missiles? Everybody. Look at the examples listed. Universities, laboratories, aircraft and engine manufacturers all get into the act.

What's It Costing? Are Missiles Cheap? We've spent about four billion since the end of WW II. Lots of that went for elaborate and necessary test stations and ranges; lots more for engineering talent; still more for electronics. And missiles aren't cheap and aren't likely to be. Right now, they compare in cost to standard fighter planes.

Do We Have Any Missiles Ready Now? No, we don't. Recent publicity was aimed at influencing Congress at budget justification hearings. No missiles defend our cities, arm our fighters, replace our artillery.

Why No Missiles Now? Well, missiles are a huge development program. To pile missiles on top of advanced manned aircraft in an industry plagued with an engineering shortage is asking for delays. Missiles require more knowledge of different sciences on a larger scale than even the A-bomb. Proof: Time and money spent on missiles and A-bomb development is about the same; A-bomb program has produced many more results.

We've lacked organization at the top until recently. Chrysler president K. T. Keller was appointed czar of the missile mess three years ago, spent the first year or so learning the ropes. His office still lacks power to ax or strengthen.

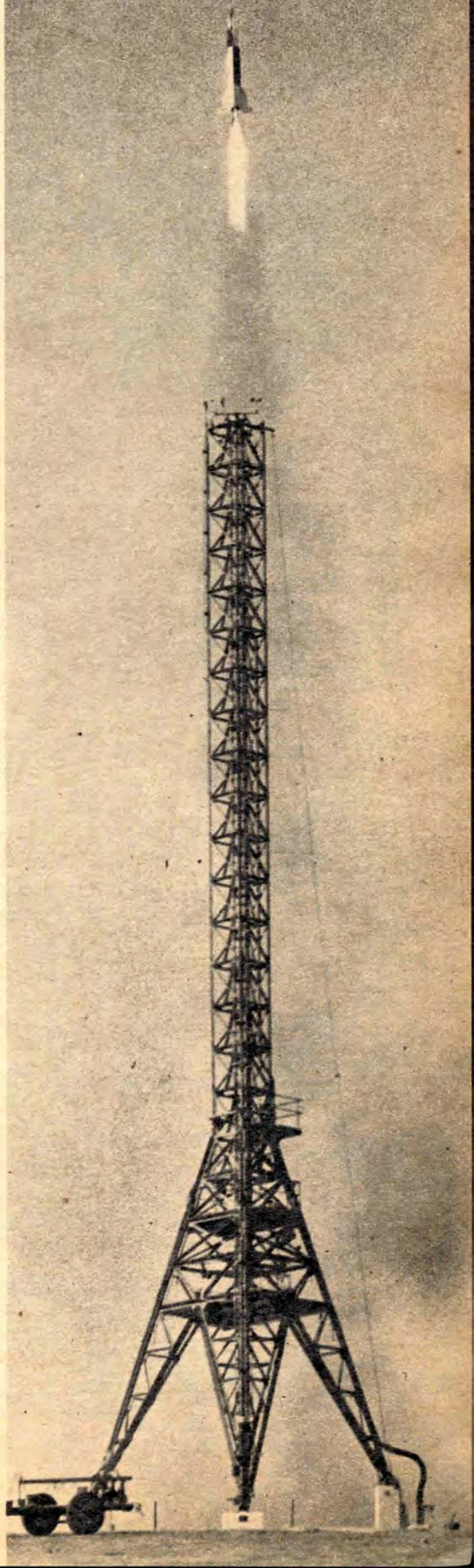
Inter-service squabbles delay action. Example: Is anti-aircraft air defense (therefore the job of the Air Force) or artillery (therefore Ordinance)? Extreme example: Wings on Ordnance missiles are "lifting surfaces"; wings are for planes, i.e., A.F.

German planning and philosophy is still strong. Dependence on captured data and scientists has eased us into the same ideas for the defense of the Third Reich. Are conditions the same here and now?

Where Are We? Missile-less, for sure. Not tomorrow, but the day after is the time to look for missiles. For four years, military and civilian leaders have been saying that missiles are coming soon. They aren't.

Fact: Today's missile program status in the U.S. is not greatly advanced over Germany's in 1945. We still lack any operational experience in the field.

Prediction: Air-to-air missiles will not be combat-ready before 1955; accurate, reliable anti-aircraft missiles until 1957; long-range missiles until 1960, if then.—*DAA*.

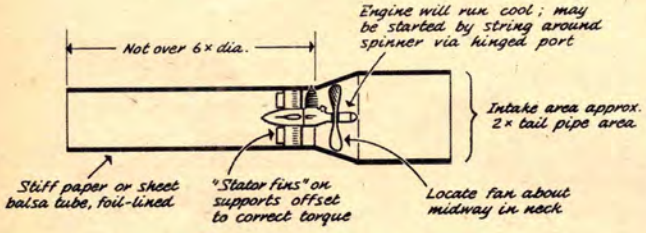


Try TURBINE

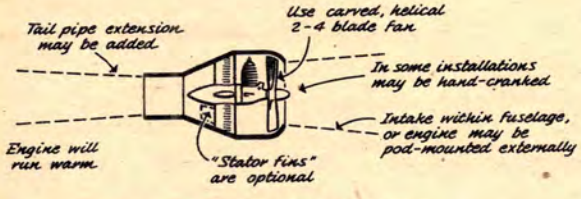
It's not too hard to convert your regular glow plug engine into a passable jet powerplant!

By ROY L. CLOUGH, JR.

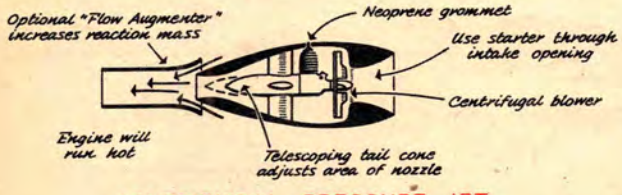
COMING ATTRACTION: scheduled for next "AT" is Roy's "Blow Bug" pressure jet basic F/F


Engine will run cool; may be started by string around spinner via hinged port
Not over 6× dia.
Intake area approx. 2× tail pipe area
Stiff paper or sheet balsa tube, foil-lined
"Stator fins" on supports offset to correct torque
Locate fan about midway in neck

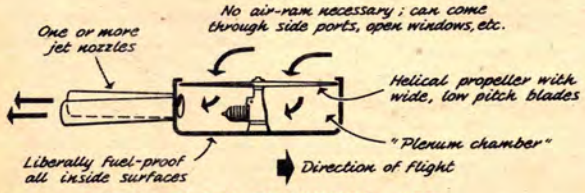
CLASSICAL DUCTED FAN JET
A low pressure, low reaction mass engine


Use carved, helical 2-4 blade fan
Tail pipe extension may be added
In some installations may be hand-cranked
Intake within fuselage, or engine may be pod-mounted externally
Engine will run warm
"Stator fins" are optional

SIMULATED "TURBO JET"
A medium pressure, medium velocity engine


Optional "Flow Augmenter" increases reaction mass
Neoprene grommet
Use starter through intake opening
Centrifugal blower
Engine will run hot
Telescoping tail cone adjusts area of nozzle

CENTRIFUGAL PRESSURE JET
A high pressure, small reaction mass engine


No air-ram necessary; can come through side ports, open windows, etc.
One or more jet nozzles
Helical propeller with wide, low pitch blades
"Plenum chamber"
Liberally fuel-proof all inside surfaces
Direction of Flight

AXIAL FLOW PRESSURE JET

■ The increasing importance of jet and rocket aircraft has focused interest on powerplants which can be used to propel their scale model counterparts without the ear-splitting racket of a pulse jet, and with longer duration than is provided by current rocket motors.

In an effort to achieve this a number of builders have been experimenting with various arrangements whereby a conventional model engine is used to produce a jet blast. Although less thrust can be produced in this fashion with any given engine than that same engine would put out with a propeller, the results can often be satisfactory if the weight of the model is kept low due to the terrific power to weight ratio of small glow plug engines.

There are at least three types of possible piston-engine operated jet motors. These are 1) ducted fan, 2) pressure jet, 3) jets operated by means of a positive displacement, or Rootes-type blower.

Since initial experimentation has been along the lines of the ducted fan system this type is best known. Basically the ducted fan is simply a model engine and propeller placed inside a tube. For optimum efficiency the tube should be so shaped that the ambient pressure is about the same on both sides of the propeller, or fan. This means that the ducted fan should produce a great increase in velocity of air flowing through it without producing a corresponding great increase in pressure. This is accomplished by proportioning the tail pipe and the intake pipe so that their difference in size matches the pressure/velocity of the air flow within each to the other, and by locating the fan in the necked-down portion between the two sections. In other words, the airflow behind the fan will be much faster than the flow ahead of the fan, so the tail pipe diameter will be proportionately less than the intake diameter, and the fan will be located at the transition point, or, where the air is speeded up. The sketch illustrates this.

The reason for this proportioning is that pressures within the tube are functions of air velocity, and, the faster the air is moving, the less pressure it exerts on the walls. If we tried to build a ducted fan with the same diameter from intake to exhaust end we would find it very inefficient because the intake end would be operating at a much higher pressure than the exhaust end, the engine would tend to starve, race, and possibly overheat, and the thrust from the efflux would be small.

The ducted fan obtains reactive propulsion by accelerating the column of air within it; it is the inertia of this column of air to being set in motion which provides the thrust. Thus anything that impedes the flow of air within the system tends to reduce thrust. It is better, then, to have tail pipe a bit on the small side than too large, and, from the empirical approach which is generally the best in model sizes, a variable area exhaust nozzle can be used to advantage. A very simple instrument which can be made from a two foot length of transparent fuel line and an oil bubble is helpful in determining pressures at various points within the duct. This is called a manometer. To work it simply suck up a slug of light oil an inch or two into the line and hold the other end first at the intake, then at the exhaust end. By comparing the behavior of the bubble in both positions a good idea can be gained of the pressure pattern. Even better, tap into the duct in several places and compare pressures.

The tail pipe pressure should be higher than the intake pressure, but not a great amount higher, for ducted fan designs. Too great a pressure difference means that the fan is working against back pressure and is not handling all the air it can; which is in direct opposition to the basic philosophy of the ducted fan: to move the greatest *mass* of air possible in the shortest possible time.

Simplicity is a great advantage of ducted fans, and of course, the tube can be used as the keel or central member of the airframe

JETS for Your Models

which supports the other assemblies. The tube may be constructed of steamed sheet balsa or stiff hard-finished paper. The writer has found that aluminum foil makes the best interior finish; being smooth and nonabsorbent it is easily wiped clean of oil from the engine. Stick it in place with hot fuel proof dope which has been allowed to thicken a bit. The necked down portion of the tube could mean making a layout for each new motor built, but this can be avoided by building this portion using a dime store funnel for a form and trimming the section where it fits. The angle is just about right and the bother of laying out a conic section is by-passed with plenty of trim allowance.

Standard practice with ducted fans is to angle the motor supports to act as stator vanes to straighten out the airflow and reduce, or eliminate torque effects. In some cases it may be necessary to add a vane or two to do the job. These should be adjustable to permit interchange of fans without losing torque trim.

Small sheet metal "flower petal" fans are generally used in ducted jobs, but try carving small wide-bladed props of correct helical pitch for added thrust. A carefully carved four-blader will move more air than metal fans. A spinner is another aid to accelerated flow. Actually, the ideal ducted fan would be a wheel-type plastic job with a well-shaped rim to prevent tip losses and to provide a good flywheel effect. Perhaps some manufacturer will read this and produce one.

Generally speaking, to get the most out of a ducted fan use as large a diameter as possible for any given model, cutting down on the number of blades and pitch where necessary to maintain correct engine speed. Be sure to streamline the back side of the engine mount and lead-out glow plug wires and needle valve extension for convenience in operation. If the engine can be fueled and started without using a removable section in the tube, so much the better. An external fuel supply, or filler line, depending upon engine used will simplify this part of operation, and a starting rod which can be poked down the intake to flip the engine over will eliminate fiddling with strings or risking chopped finger tips to get the thing going.

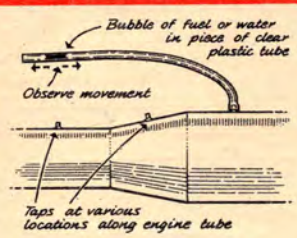
The ducted fan motor works best in scale-type models flown at moderate speeds and may be used singly, as a fuselage member, or mounted in external pods. If pod mounts are used, keep them as close together as possible. Some adaptation to helicopter use is possible, but the bulk and clumsiness of this type of model jet makes it less practical for rotary wing craft than our next consideration: the pressure jet.

The pressure jet system has not been widely employed in conjunction with model engines. This is quite a different affair from a ducted fan. The pressure jet consists essentially of an impeller, or blower, which keeps a reservoir or plenum chamber stuffed with compressed air, and from this reservoir lines are bled off to feed jet reaction nozzles which may be located some distance away from, or at least angles to, the blower.

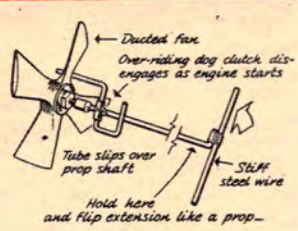
Unlike the ducted fan, the idea is not to provide a large mass of air with velocity, but to supply a smaller mass of air at a relatively high pressure, to high velocity discharge nozzles (or afterburners).

Pressure jet systems may use either an axial flow (propeller) fan, or a centrifugal blower, depending upon the general layout and designer's discretion. They could also use positive displacement blowers of the Rootes type, as mentioned above. The chief objection to use of this type blower is that there is none light enough for model use, and in any event they operate at a slower shaft speed than model engines provide, which seems to suggest infinite complication, hence impracticality for our purpose.

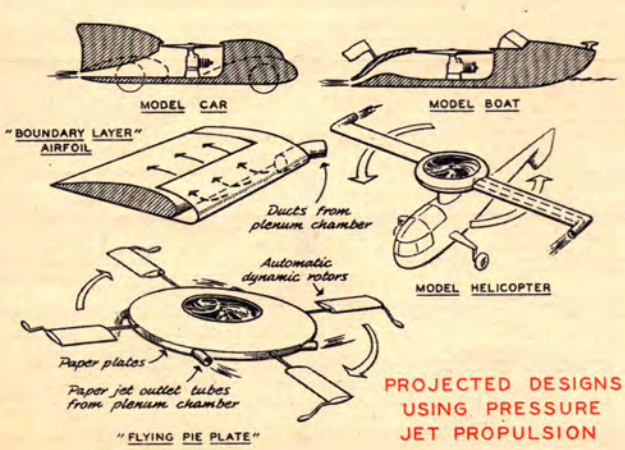
Pressure jets offer intriguing possibilities for buried installations, experiments with multiple jets, boundary layer control, helicopter propulsion, etc. We may use a simple box with a tightly fitting rotor for the plenum chamber and bleed off jet tubes wherever we wish. (*Continued on page 69*)



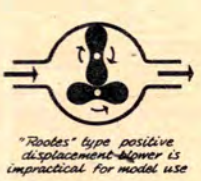
"JIFFY" MANOMETER

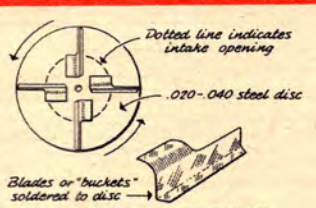

Ducted fan
Over-riding dog clutch disengages as engine starts
Tube slips over prop shaft
Stiff steel wire
Hold here and flip extension like a prop.

DUCTED FAN STARTER

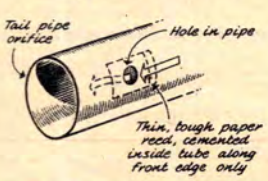


PROJECTED DESIGNS USING PRESSURE JET PROPULSION

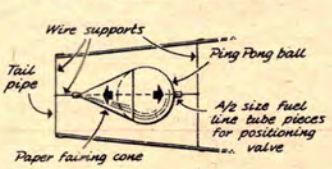




CENTRIFUGAL BLOWER



TAIL PIPE RELIEF VALVE



CONE TAIL PIPE VALVE

Simple sheet metal "flower petal" is bent for pitch

Four-blade wooden fan is more efficient type

Plastic fan with integral flywheel rim would be best...

FAN TYPES FOR DUCTED MODELS

THREE TIMES CONTINENTAL TROPHY RACE WINNER!

BONZO

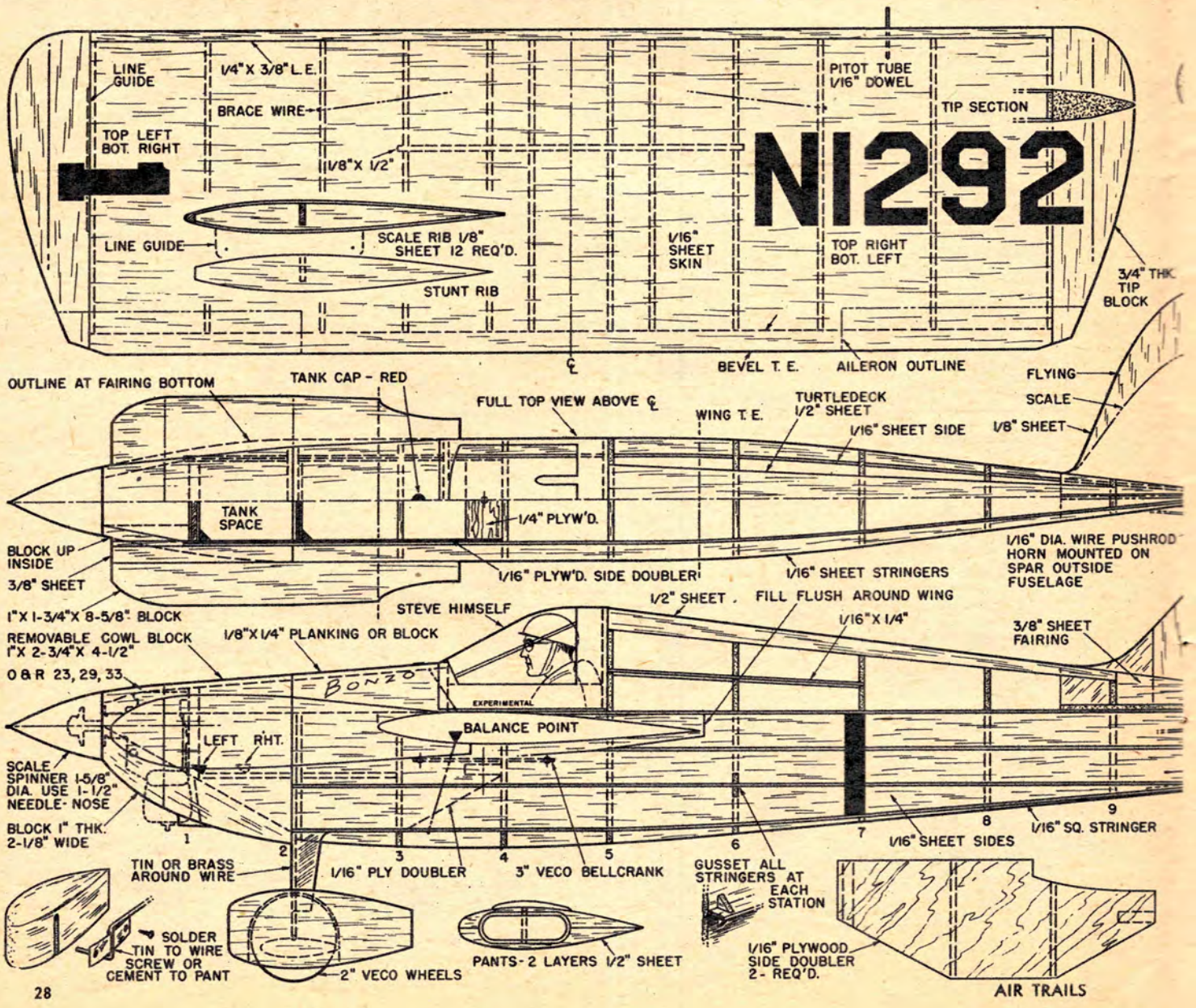
By S. CALHOUN SMITH

For your "must" list—a fine control line flying scale of a famous racer!

■ Of all the designs to appear in Goodyear and Continental racing, Steve Wittman's "Buster" and "Bonzo" have consistently shown their tail skids to the competition. If ever design simplicity has proven its worth performance wise, these airplanes put the QED on the formula.

Bonzo could be called a sister ship to Buster and through the latter can trace its ancestry back to the prewar race days. Steve's success since then certainly has not diminished in the midget field, and was climaxed at the 1952 Air Races by his third win of the Continental Trophy. Wittman announced his retirement from air racing as he proudly took permanent possession of the big mug. So *Bonzo* becomes a piece of aeronautical history, it represents the tops in prop-driven midget racers.

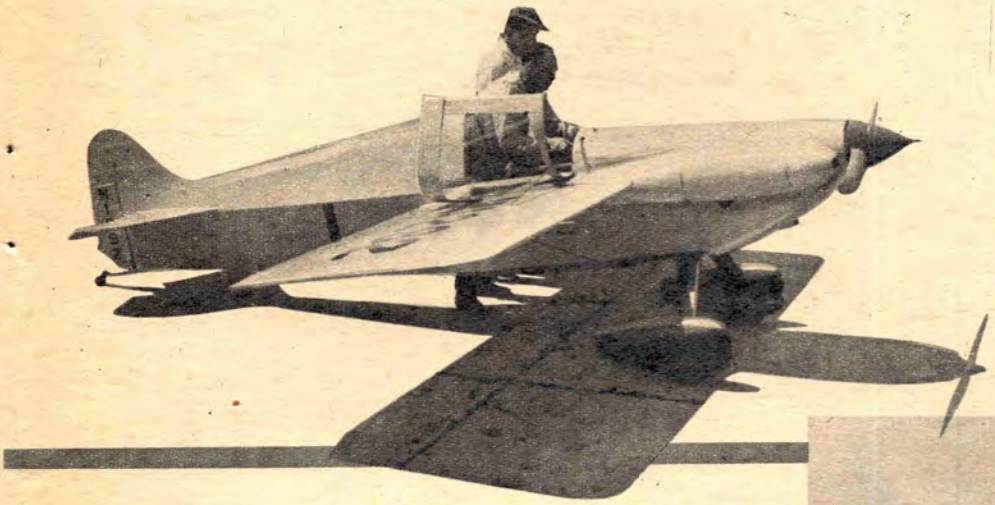
Bonzo's configuration has set the style for many of its competitors. The high

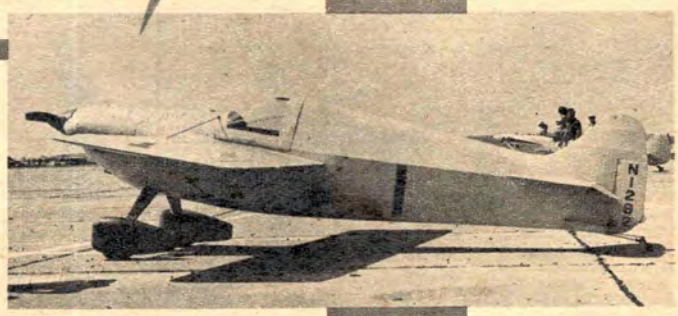


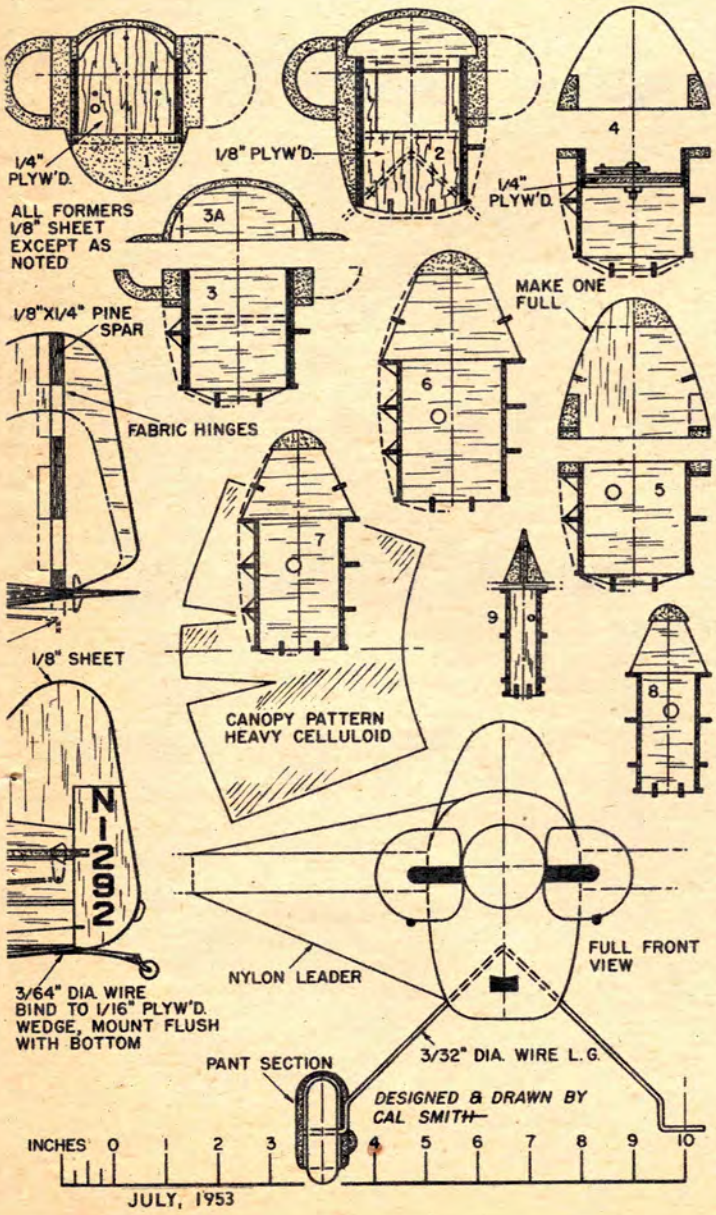
mid-wing with engine fairings flowing smoothly into the wing is probably the most copied feature. Construction follows standard lightplane practice with welded steel tube fuselage, stringers and fabric covering. Tails are steel tube, fabric covered, while wings are wood structure with plywood skin. Cowlings and fairings are formed from sheet aluminum.

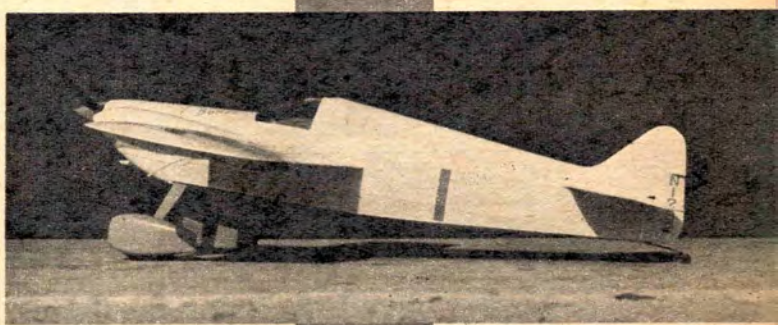
One feature used by Wittman is the wire-braced wing, saving much weight in structure at very slight additional drag. The flat plate gear invented by Wittman is of course employed. The working end of the 85 hp Continental turned many an experimental prop, notably the scimitar shape (*Continued on page* 80)

Maestro of the Pylons, Steve Wittman photoed by Cal Smith at '51 National Air Races. Big and little ships (below). Cal was a "natural" to do model since hez been building a big racer himself during the past several years.



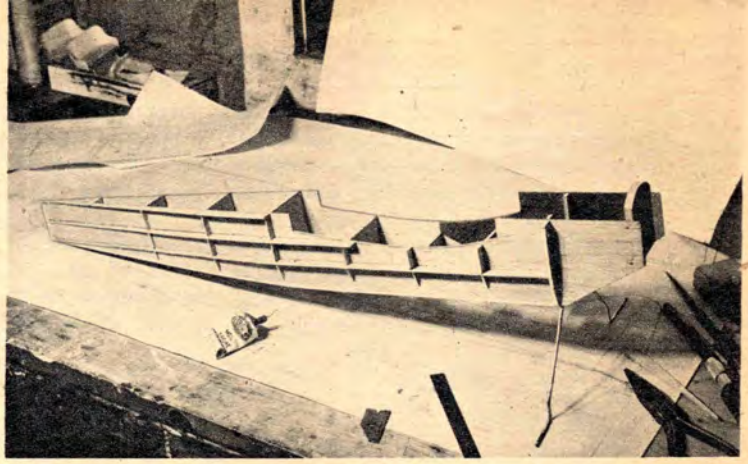



1/4" PLYW'D.
1/8" PLYW'D.
1/4" PLYW'D.
ALL FORMERS 1/8" SHEET EXCEPT AS NOTED
1/8"X1/4" PINE SPAR
FABRIC HINGES
MAKE ONE FULL
1/8" SHEET
CANOPY PATTERN HEAVY CELLULOID
N1292
NYLON LEADER
3/64" DIA. WIRE BIND TO 1/16" PLYW'D. WEDGE, MOUNT FLUSH WITH BOTTOM
PANT SECTION
3/32" DIA. WIRE L.G.
FULL FRONT VIEW
DESIGNED & DRAWN BY CAL SMITH
INCHES 0 1 2 3 4 5 6 7 8 9 10

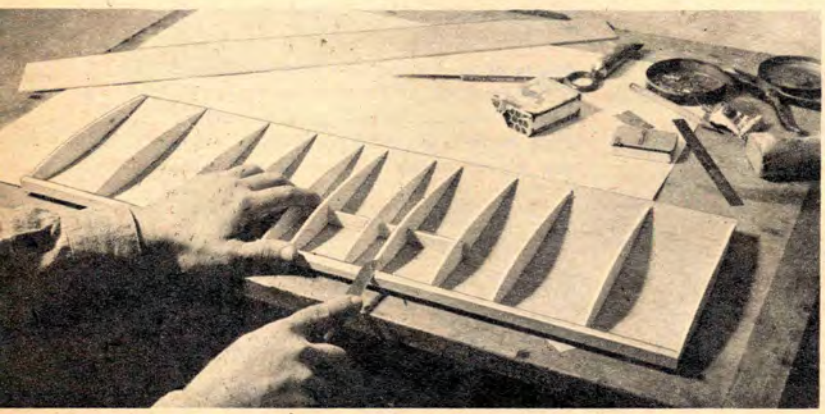


JULY, 1953

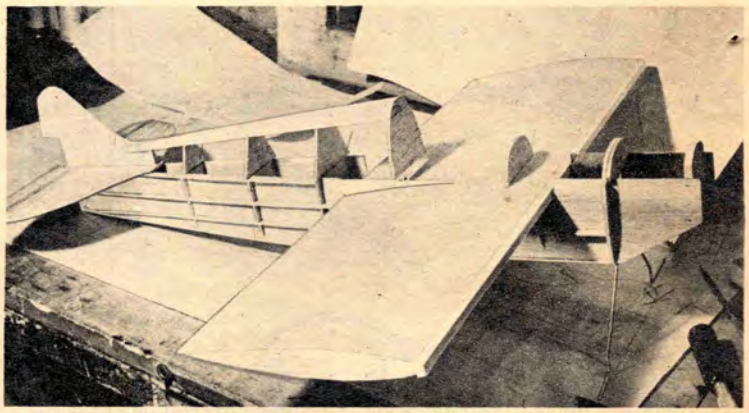
STEP #1: Cut out the fuselage sides and doublers and glue together. Mark former positions on sides, then join these upside down over plan. Bend gear wire and "J" bolt to former No. 2.



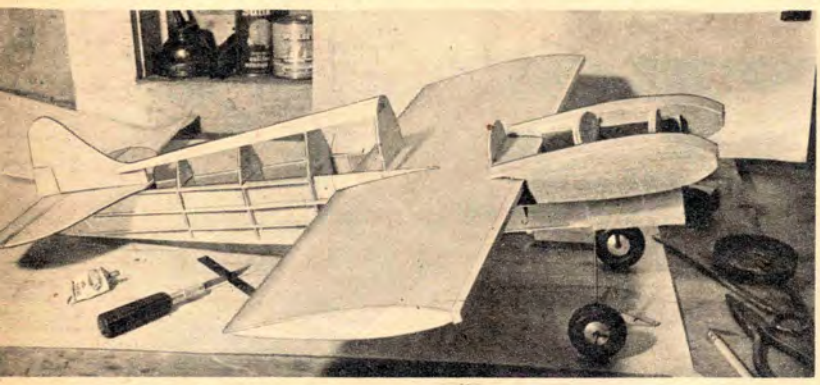
STEP #2: Remove the fuselage from your work board and add stringers and gussets to both sides. Next install bellcrank mount, bellrank and push rod. Leave rod long at rear, bend later.



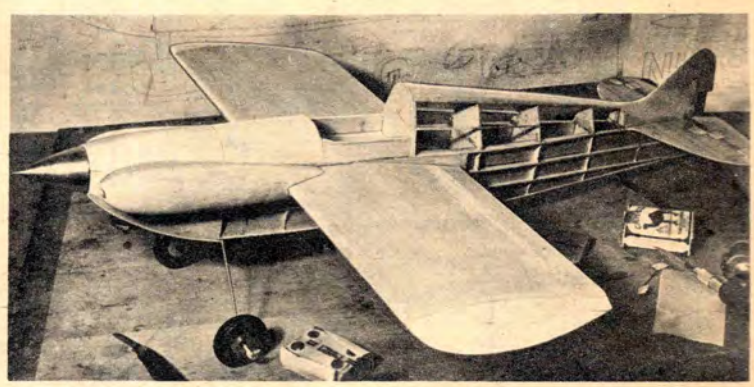
STEP #3: Cement wing skin sheets together, mark rib positions, cement ribs to one skin. Add leading edge, spar and other skin. Bevel trailing edge, carve leading edge. Add tip blocks, sand.



STEP #4: Mount the wing permanently on the fuselage. Use plenty of glue, don't spare it! Add top fuselage formers, then the stabilizer and fin. Connect the push rod to the elevator horn.



STEP #5: Your model Bonzo really begins to take shape as you add the nose blocks and fairing blocks. Let dry thoroughly afore you start carving. Complete remaining work on fuselage top.



STEP #6: Carve, sand nose blocks. Install engine and spinner temporarily to aid carving. Build up fin fillet with Plastic Balsa. Fill all cracks, seams. Add canopy. Finally, prime and cover.

Frank's LITTLE "BUTTERCUP"

In this issue "AT" presents two different sized flying scale models of Steve Wittman's remarkable passenger-cargo "Buttercup" lightplane, both designed by Frank Van Buren. The radio control copy will be found on page 52. This smaller version is for F/F A/2 Flying Scale or Control Line Flying Scale. For the latter Frank uses a small .02 Infant engine. For the U/C scaler he found that the new McCoy .049 Diesel provided plenty of git-up-and-go. Construction closely parallels that of the original airplane.

The original 2-place "Buttercup" was designed by and built under Steve Wittman's direction; it has an 85 horsepower Continental type engine. The ship is fitted with a tube-type landing gear which is light flexing in all directions and very easy for the model maker to duplicate in exact scale. Wittman used his lightplanes as accessory "trucks" to accompany his two midget racers, Buster and Bonzo. Buttercup ferried racing props, extra wheels, tools, and spare parts.

Notes: the F/F uses dihedral, the C/L'er does not; a solid stab is made for the "line" version; the free flight's stab is built up. Downthrust is called for on the .02 F/F, none on the control model.

DESIGNED by FRANK VAN BUREN from authentic 3-views by S. C. SMITH.....

Official Modelplane Rules

GOVERNING SPORTING MODEL AVIATION IN AMERICA

Provisions for issuance: Under authority of the National Aeronautic Association, American representative of the Federation Aeronautique Internationale, world-wide governing body for all sporting aviation, the following model aircraft classifications and regulations are hereby prescribed by the Academy of Model Aeronautics.

Copyright 1953 by the Academy of Model Aeronautics, 1025 Connecticut Ave., N.W., Washington 6, D.C.

Sanctioned Competition

SANCTIONED COMPETITION. The Academy of Model Aeronautics will sanction model aircraft competition which is conducted by recognized contest directors according to these official regulations.

CLASSIFICATION OF SANCTIONED MEETS. Contests and record trials are classified as follows:

Record Trials—A contest conducted for the sole purpose of providing an opportunity and facilities for attempts to establish or surpass official model aircraft speed or duration records, with no special awards offered to the winners.

Class A Meet—A contest in which entry is restricted in any way; a closed competition.

Class AA Meet—A contest in which entry is unrestricted and which is open to all licensed model flyers.

Class AAA Meet—State or regional championship contest which is large in size, draws many contestants, and offers important awards.

Class AAAA Meet—National or international championship contest which offers traditional trophies.

RECORD TRIALS. In attempting to establish records, flyers in record trials competition shall be permitted as many flights as possible. Where flights are scored according to the highest or fastest single flight time, no limitations shall be placed on the order of flights. In categories scored on the basis of the total flight time for 3 official flights, each attempt to establish a record shall consist of a complete series of 3 official flights, so that no flight or flights of one series shall be combined with a flight or flights of another series for scoring purposes.

OFFICIALS. All sanctioned contests and record trials shall be conducted by a Contest Director who has been appointed by the Academy of Model Aeronautics. To receive appointment, a Contest Director must be a Leader member of the Academy of Model Aeronautics. The Contest Director may name as many assistants as are necessary to ensure a well-run competition. As many of these assistants as possible shall be Leader members of the Academy of Model Aeronautics.

TIMERS. Those appointed by the Contest Director to act as timers shall be thoroughly familiar with these regulations. They shall have normal vision or shall have defective vision corrected to normal by eye glasses. Eye shades and ordinary tinted eye glasses may be worn, but no optical devices such as binoculars are to be used. Timers shall be thoroughly familiar with the use of stop watches.

As a public service to the model enthusiasts of the U. S., "Air Trails" is presenting the official Academy of Model Aeronautics regulations in installments to cover all phases of air-modeling. This initial presentation deals with some of the rules which apply to all events and all contestants. Successive articles will complete the general rules and deal with specific types. These rules are for the next 2 years.

AGE CLASSIFICATION FOR CONTESTANTS. Age, for the purpose of classification, will be taken as of July 1 of each year. Contestants under 16 years are classed as Juniors; contestants 16 or more but under 21 years are classed as Seniors; contestants 21 years or over are classed as Open flyers. Records are segregated as Junior, Senior, or Open events, according to the age classification of the contestant when the record was established.

LICENSED FLYER. A licensed flyer is one who has been issued a model flyer's sporting license by the Academy of Model Aeronautics.

WHO MAY COMPETE. Only those holding a model flyer's license may compete in sanctioned competition as outlined above. The Contest Director or his representative shall examine the sporting license of each contestant to determine its validity and the contestant's elegibility to compete.

COMPETITION OF DIRECTORS. Contest Directors may compete in Record Trials or in A or AA meets provided there is another officially-appointed Contest Director present to time and record the flights. The Contest Directors of AAA or AAAA meets may not compete. No activity will be permitted which might interfere with the proper execution of the duties of any contest official.

APPLICATIONS FOR SANCTION. Application for sanction of a model aircraft contest or Record Trials shall be made at least 30 days in advance of the competition by a Contest Director of the Academy of Model Aeronautics.

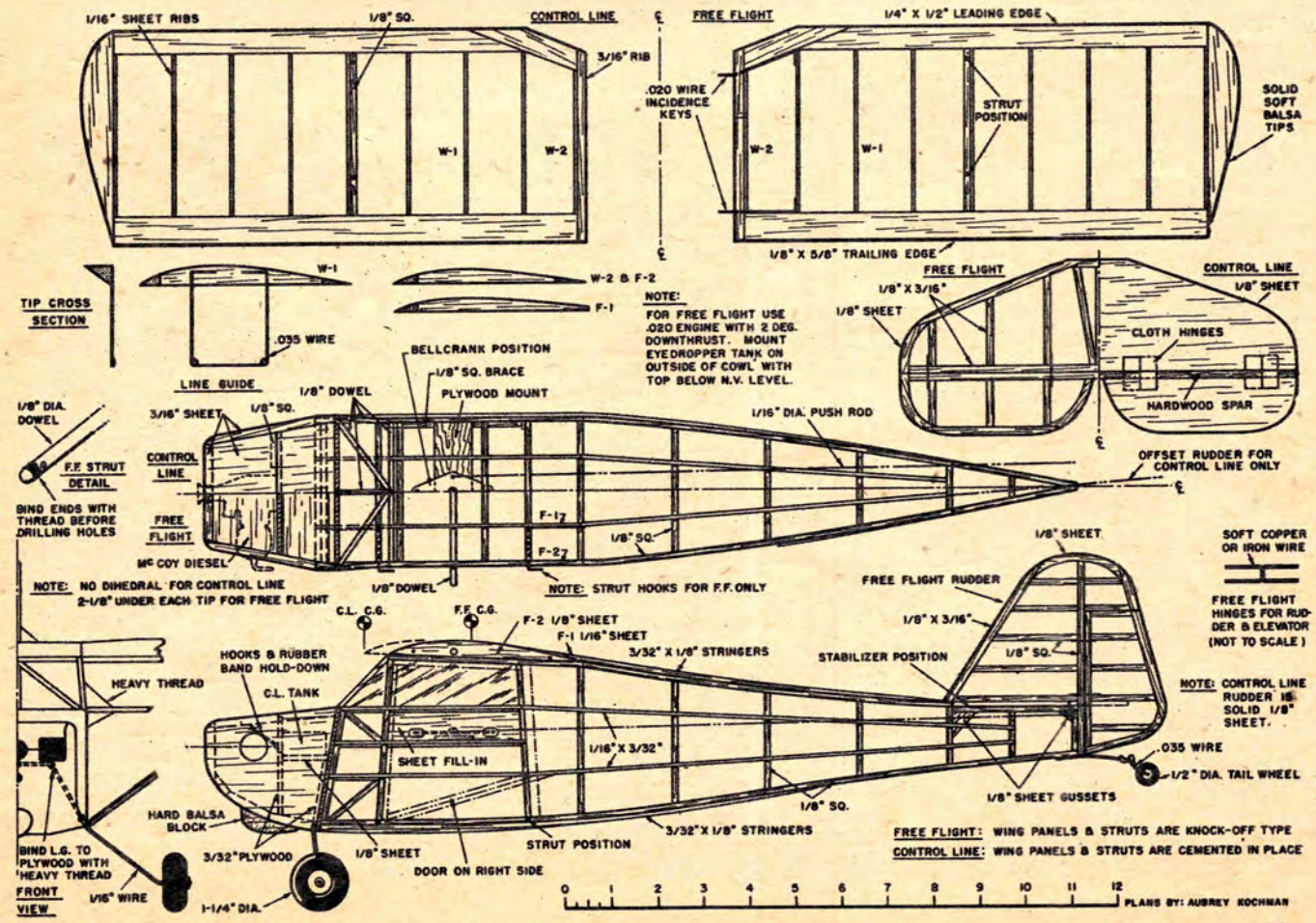
HANDICAPS. Unless approved by AMA, handicaps are prohibited.

EQUIPMENT. Stop watches with graduations of not less than one-fifth second shall be used for timing all free flight duration events. For control line speed events, stop watches shall have graduations of not less than one-tenth second. Contest Directors shall be responsible for the provision of pivot-posts or pylons used in control line speed events and of official towlines for towline glider events. Such scoring and recording aids as are necessary to ensure efficient conduct of competition shall be provided by meet officials.

TAKE-OFF FACILITIES. Smooth runways or platforms, of sufficient size to permit unassisted take-offs, shall be provided for rise-off ground events. Platforms, if used, are to be horizontal and are not to be raised more than one inch indoors from the floor, or 6 inches from the ground outdoors. For rise-off water events, the water shall have sufficient surface area to permit unassisted take-offs, and shall not be less than one inch deep indoors or 6 inches deep outdoors.

TERRAIN. The contest site shall be reasonably level, and shall not be elevated above the adjacent area so as to afford free flight con-

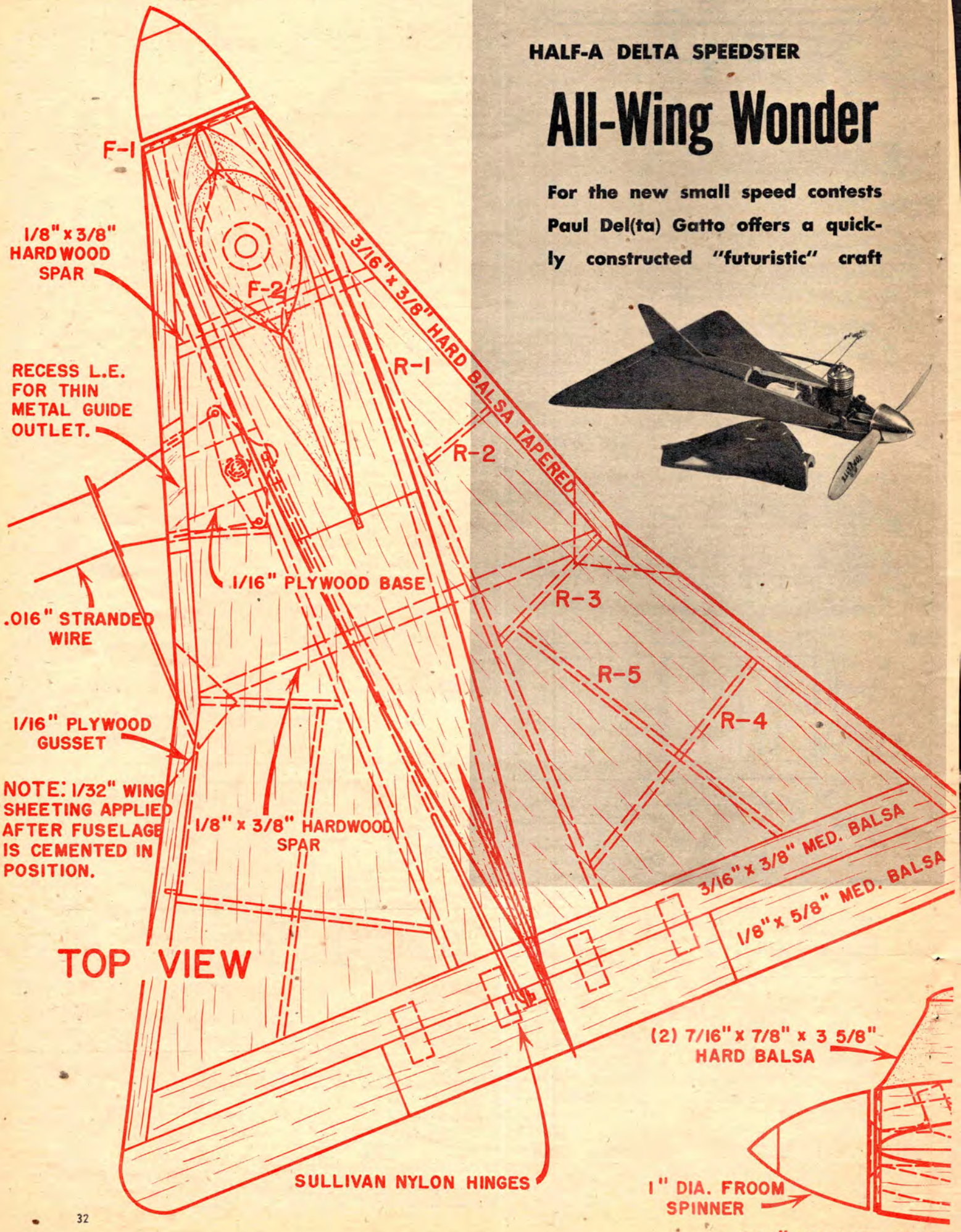
(*Continued on page* 79)

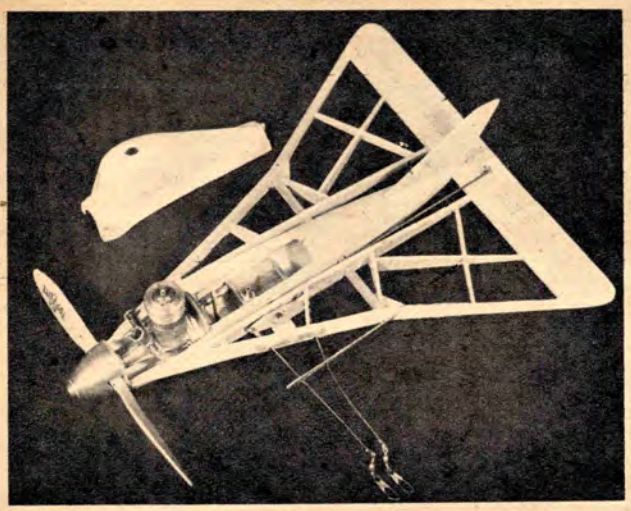


HALF-A DELTA SPEEDSTER

All-Wing Wonder

For the new small speed contests Paul Del(ta) Gatto offers a quick-ly constructed "futuristic" craft





■ Now that the Half "A" speed event is a recognized one, the classification promises to be a hotbed of activity this season. This delta wing model represents less than twelve construction hours.

If the model is built light and care is exercised in the construction and finish, your speed with an Atwood .049 should be in the 85 mph range.

At first glance the model's compact size and unusual wing structure may give the false impression that it is tricky to build. That just isn't so as you will see when you get under way with razor blade and sandpaper.

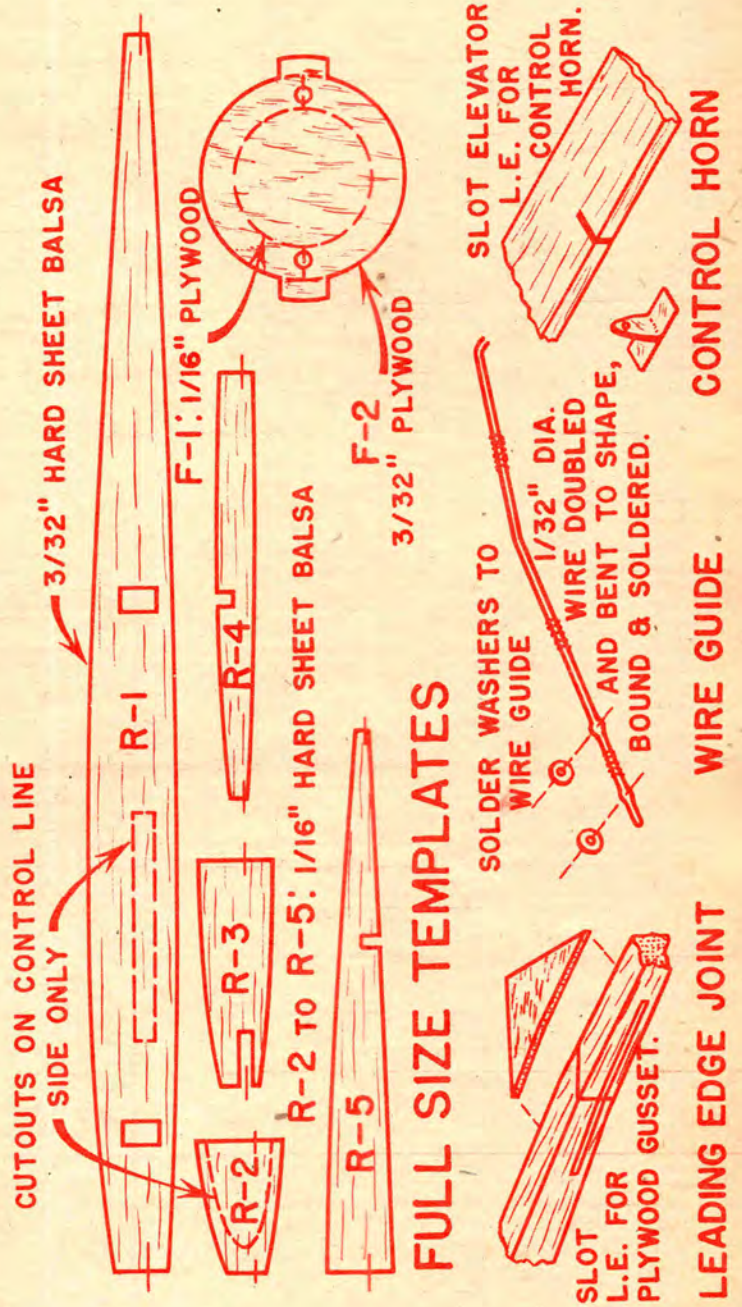
Begin with the fuselage. Cut out the 1/16" plywood ring (F-1) and cement to the blocks before carving. Carve to shape the blocks for the upper and lower shell. When the approximate shape is obtained, cut away the section on the upper shell which the engine will fit. The 3/32" plywood firewall is cut to shape and both the upper and lower shell are notched to receive it.

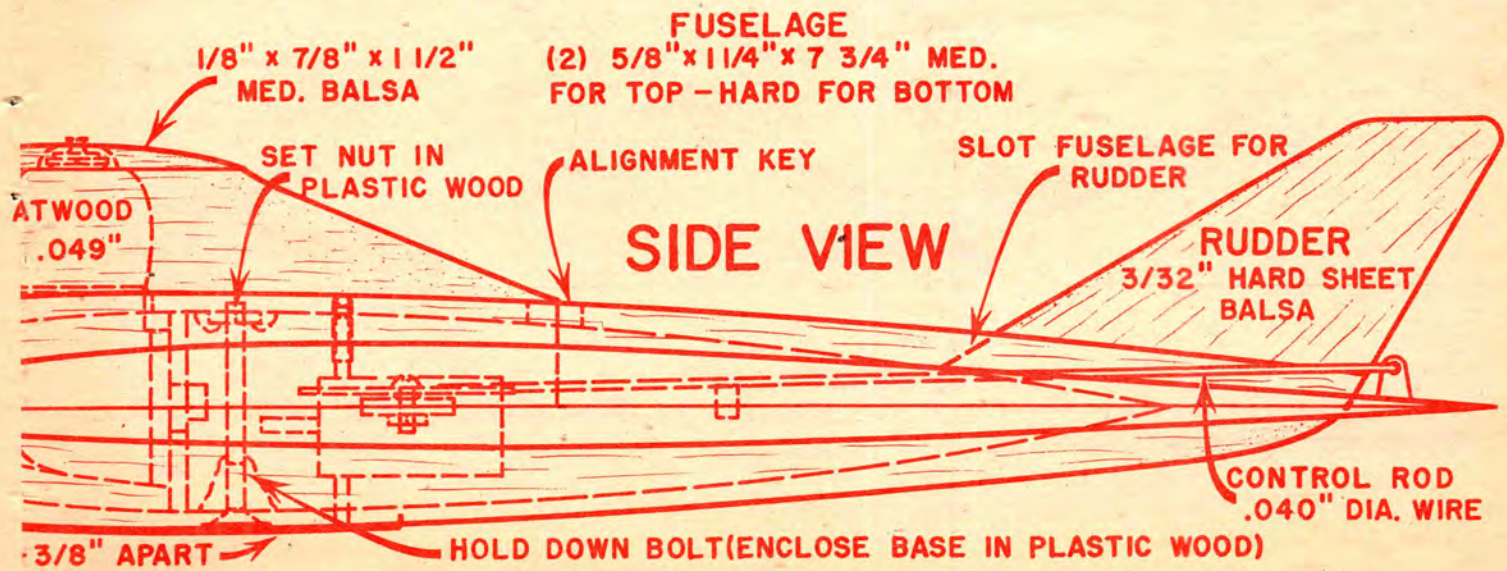
The cowl is made with two side pieces and one top piece. Cement the two side pieces together temporarily until the external shape has been obtained; then pry apart and carve out to the desired inside shape and cement to the upper shell. The top piece or "cap" is shaped and cemented in place to complete the cowl.

From a piece of sheet balsa, shape and sand the rudder. Notch the rear of the upper fuselage shell to receive the rudder and cement firmly in position.

Start construction of the wing by cutting out the ribs and constructing the leading edge as indicated. After these preliminaries lay out the wing plan as you would any other. The leading edge is not cemented in place until the hardwood spars have been inserted through the ribs. When the wing frame is completed, install the bellcrank and wire guide assemblies in place.

The upper fuselage shell is severed into two sections just aft of the cowl; the forward section (*Continued on page* 64)




FUSELAGE
(2) 5/8"x 1 1/4"x 7 3/4" MED. FOR TOP – HARD FOR BOTTOM
1/8" x 7/8" x 1 1/2" MED. BALSA
SET NUT IN PLASTIC WOOD
ALIGNMENT KEY
SLOT FUSELAGE FOR RUDDER
ATWOOD .049"
SIDE VIEW
RUDDER 3/32" HARD SHEET BALSA
CONTROL ROD .040" DIA. WIRE
3/8" APART
HOLD DOWN BOLT(ENCLOSE BASE IN PLASTIC WOOD)

Thoroughly tested, this durable Wakefield can take it!

Lee's 22, draftsman, member of N.E. Wakefield Group . . . has 2 youngsters . . . Canton, Mass.; glider fan

La Sorra

■ La Sorra is the result of two years of intensive development and research into all phases of Wakefield flying. The original model of this series was Haig Parechanians' 1951 New England eliminations winner. Ten different models were built and flown before the design emerged in its present form. This model combines simplicity with high performance—important when flying Wakefields. Every weak point in the structure has been eliminated and excess weight removed until the strength to weight ratio is much higher than that of the conventional type of structure.

The large area, high aspect ratio wing utilizes a modified NACA 6410 airfoil, giving a high lift-drag ratio and slow sinking speed. A 9% airfoil is used on the stab, whose 30% area has been found sufficient to assure stable flight in all kinds of weather. The high A/R stab gives excellent anti-stall characteristics and gets the twin rudders out of the prop blast. This makes it easier to adjust the turn without any danger of spiral dives. A fairing over the wing is used to meet the cross section requirement of Wakefield rules, while reducing the dead weight of a deep, wide fuselage. This results in clean wing-fuselage joint, with none of the troubles inherent in pylon wing mounts.

Perhaps the most unusual feature of the model is the sheet balsa fuselage, which has no longerons or closely spaced uprights. This is much easier and quicker to build than the paper-covered framework type almost always used on Wakefields. With the proper wood and careful workmanship this fuselage can be built as light as 1.1 ounces, and still be strong enough for Wakefield flying. There is no worry about cracking a longeron or breaking a few uprights. The sheet is easily repaired and will withstand crackups which would demolish a paper-covered fuselage. It is very rigid and will never twist under the strain of a fully wound motor. Previous models have been flown with a return-gear system and no structural problems developed from the additional stresses. The increased popularity of sheet fuselages in all kinds of gas models is evidence of their advantages.

Sheet covering is used on the wing and tail leading edges to preserve a true airfoil shape. Other types of wing structure have been tried, but the loss in performance offsets any gain from lighter weight. This type of construction will also survive landing in a tree.

While on the subject of light weight I would like to contribute a few thoughts of my own. The lighter the model the better it will fly on the same amount of rubber. However, too many Wakefield designers build a very light airplane—only to have it badly damaged before they can complete three official flights. At one time I was building models of this type which weighed less than three ounces, but something always seemed to break at the wrong time. Many superlight models get one terrific flight only to be broken before they can repeat. I think that 3½ oz. is a good weight for competition flying.

Models of this series have won many East Coast contests and got up to semi-final competition in 1951 and 1952. It has placed in every meet entered and has always made three official flights. Four members of the New England Wakefield Group have built these models, and all have been very successful. The first official flight of the model shown here was 4:19 in dead evening air, at the 1952 East Coast Challenge meet, held at Hicksville, Long Island, where *La Sorra* had high time of the contest and insured first place for the Boston team. My wife, Connie, built and flew her own model, placing fifth in the New England eliminations, and missed the semi-finals by only a few seconds.

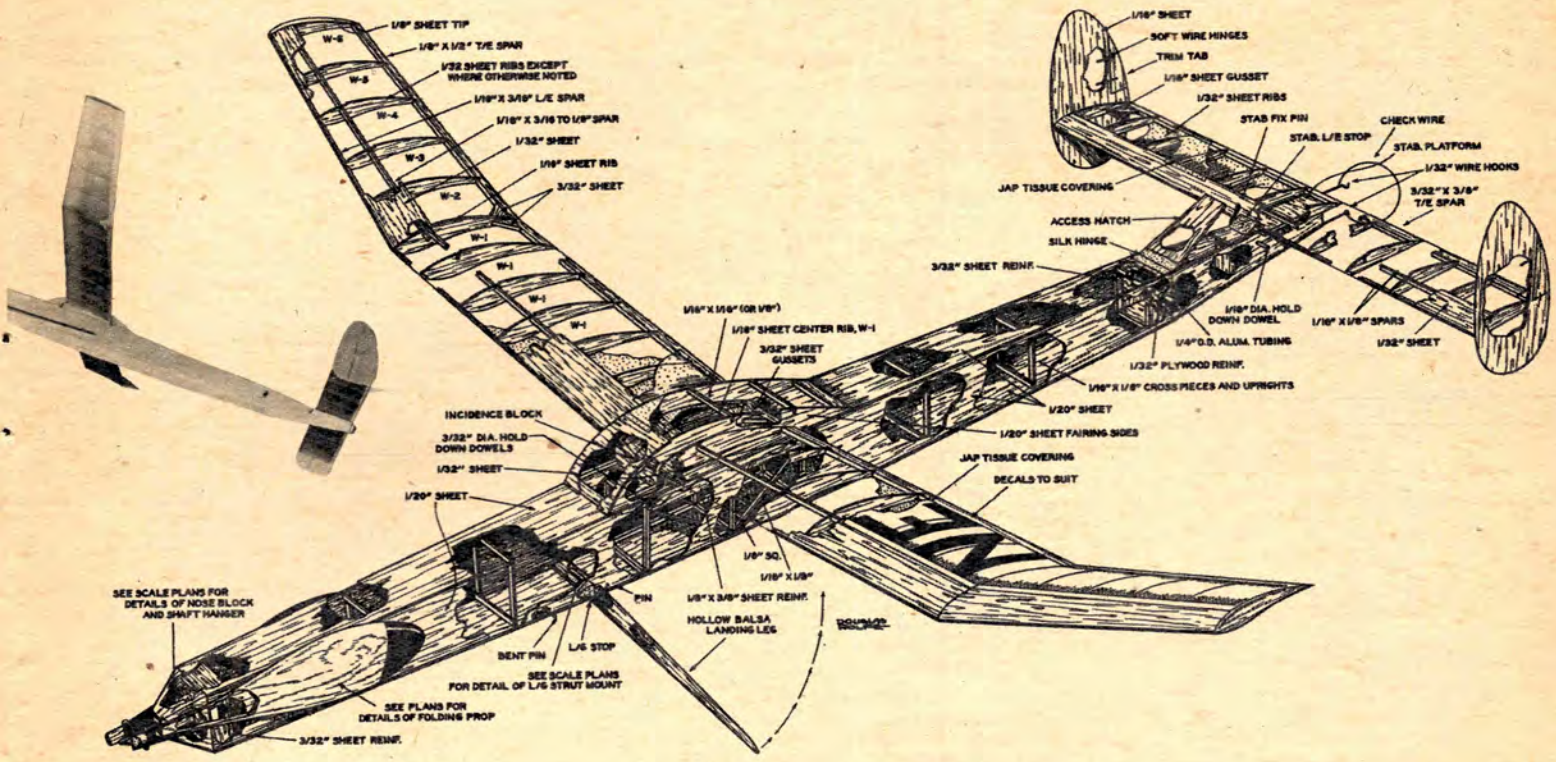
Complete construction details are available on the full-size plans.

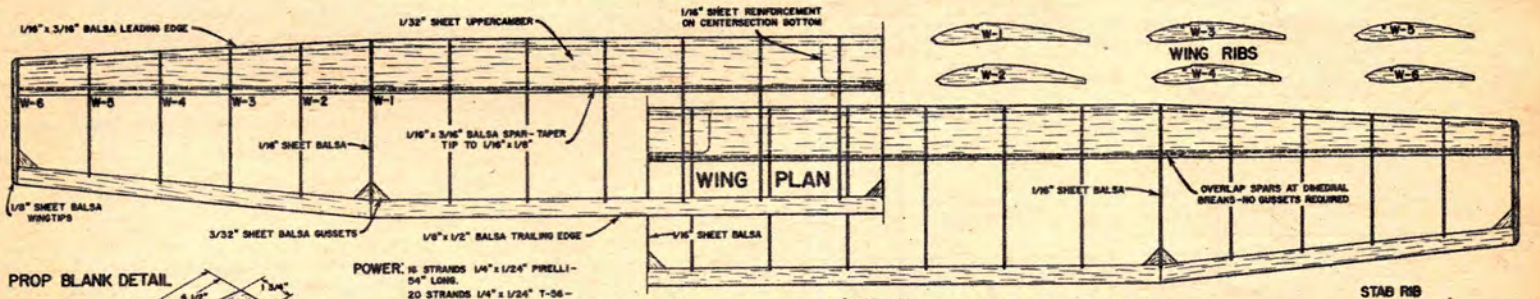
By LEE RENAUD

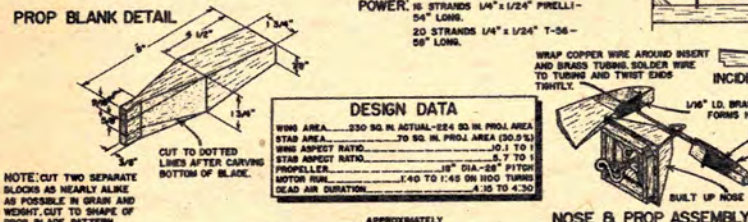
Bill of Materials

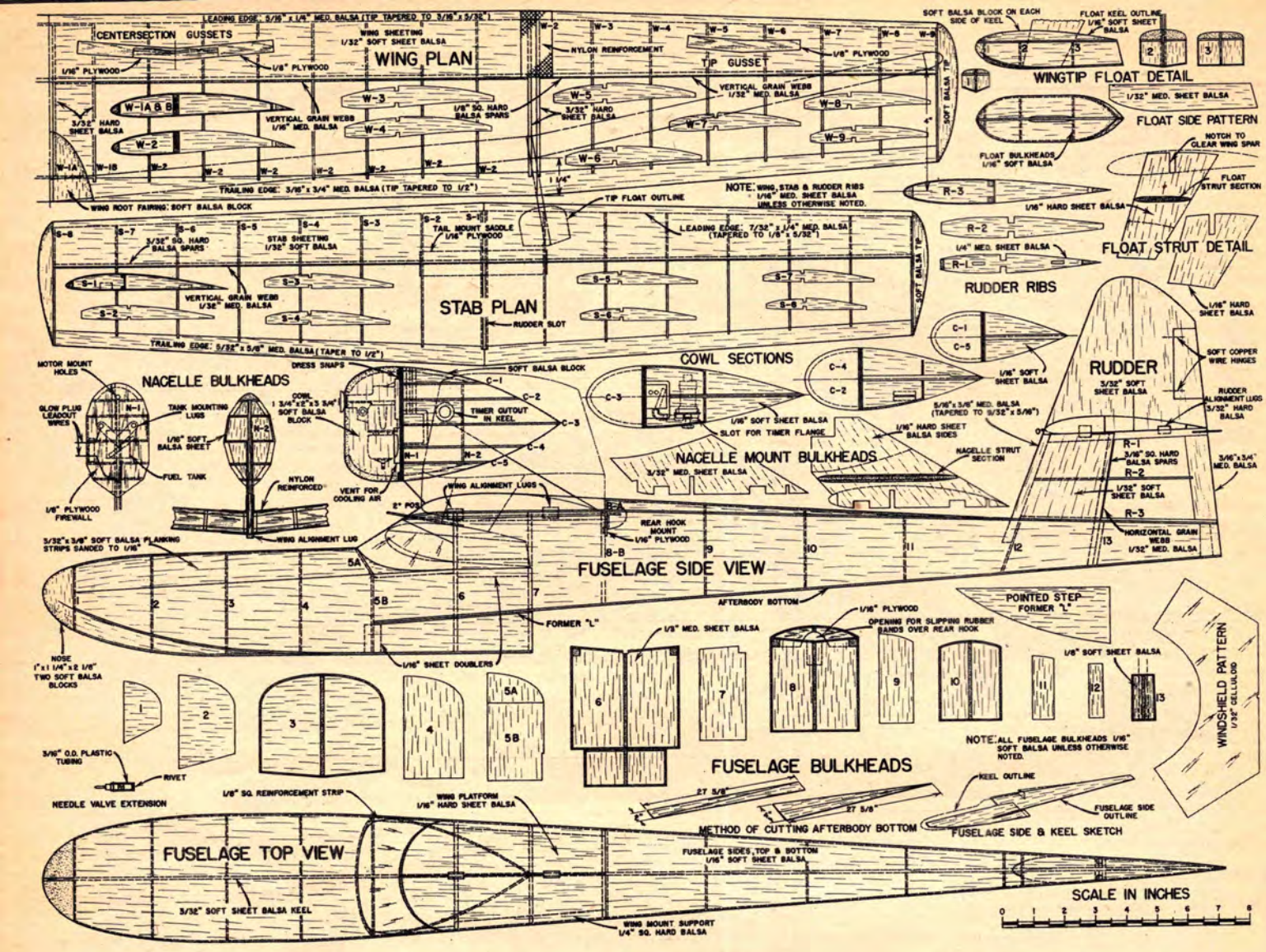
5 pieces 1/20" x 3" x 36" sheet balsa, fuselage, tail cone and fairing. 3 pieces 1/32" x 2" x 36" sheet balsa, wing and tail sheeting. 1 piece 3/32" x 2" x 24", nose and tail reinforcements and wing gussets. 1 piece 1/16" x 4" x 12", rudders and center-section reinforcement. 2 pieces 1/32" x 3" x 36", wing and stab ribs. 2 blocks, 1¾" x 1¾" x 9", propeller. 1 piece 1/16" x 1/16" x 18," 2 pieces ⅛" x ⅛" 36". 5 pieces 1/16" x ⅛" x 36". 1 piece ⅛" x ⅜" x 18". 1 piece 3/32" x ⅜" x 36" T. E. stock. 2 pieces ⅛" x ½" 36" T. E. stock. 3 pieces 1/16" x 3/16" x 36". Scrap balsa blocks. Plywood. ½" lg. #4-40 screw and nut. Thrust bearing. Tensioner spring. Copper wire. Aluminum tubing. 1/32" and 1/16" diameter music wire. Camphor. One pint nitrate dope. Silk. Pins. 3 sheets Jap tissue. Rubber bands. Trim-Film or decals.

Models of this series have won many East Coast contests; 1st flight—4:19





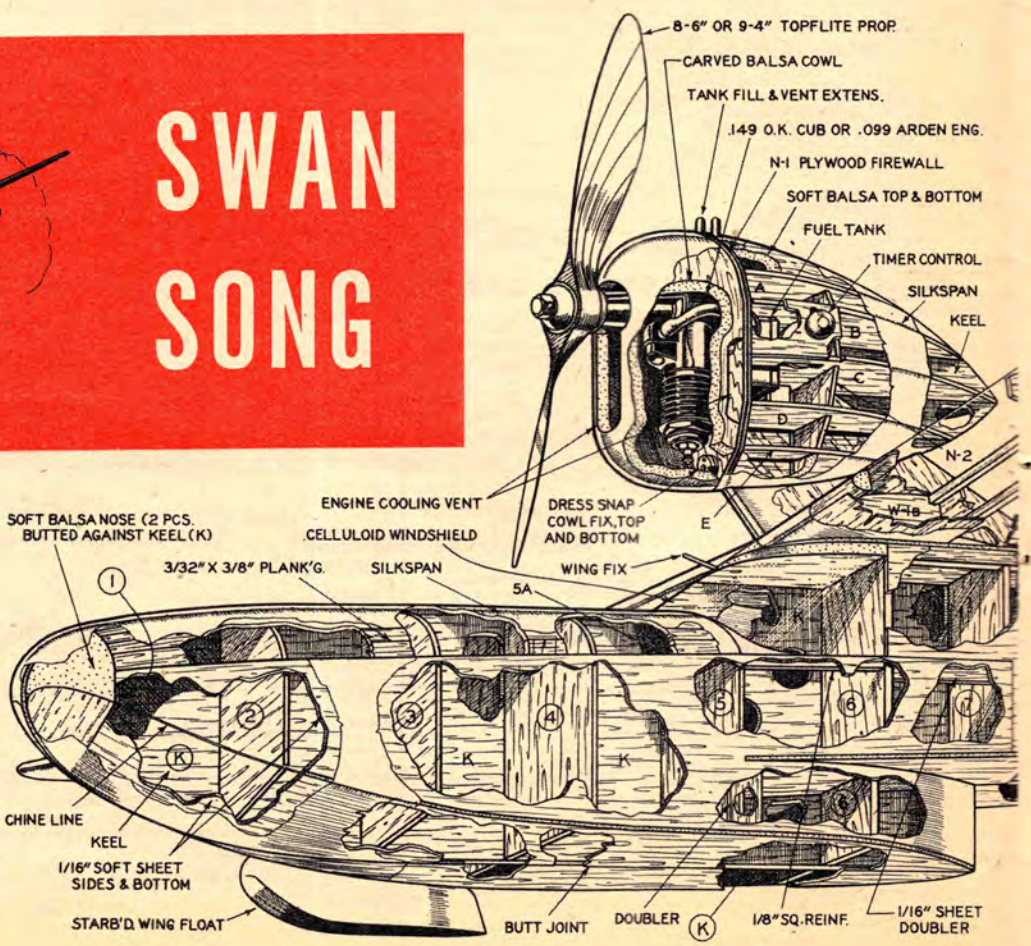

PROP BLANK DETAIL
5"
5 1/2"
1 3/4"
1 3/4"
1/8"
3/4"
CUT TO DOTTED LINES AFTER CARVING BOTTOM OF BLADE.
NOTE: CUT TWO SEPARATE BLOCKS AS NEARLY ALIKE AS POSSIBLE IN GRAIN AND WEIGHT. CUT TO SHAPE OF PROP BLADE PATTERN.
POWER: 16 STRANDS 1/4" x 1/24" PIRELLI— 54" LONG.
20 STRANDS 1/4" x 1/24" T-36— 58" LONG.
DESIGN DATA
WING AREA.....230 SQ. IN. ACTUAL—224 SQ. IN. PROJ. AREA
STAB AREA.....70 SQ. IN. PROJ. AREA (30.5%)
WING ASPECT RATIO.....10.1 TO 1
STAB ASPECT RATIO.....5.7 TO 1
PROPELLER.....15" DIA—28" PITCH
MOTOR RUN.....1:40 TO 1:45 ON 1100 TURNS
DEAD AIR DURATION.....4:15 TO 4:30
1/4" SHEET BALSA
INCIDENCE BLOCK
WRAP COPPER WIRE AROUND INSERT AND BRASS TUBING. SOLDER WIRE TO TUBING AND TWIST ENDS TIGHTLY.
1/16" I.D. BRASS TUBING FORMS HINGE
3/32" PLYWOOD INSERT
COVER THIS SECTION OF BLADE WITH SILK.
BUILT UP NOSE BLOCK.
NOSE & PROP ASSEMBLY
NOTE: ALL WING AND STAB RIBS ARE 1/32" "C" STOCK UNLESS OTHERWISE NOTED.
BEND HOLD DOWN HOOKS FROM PIN AND CEMENT WELL.
STAB RIB
1/16" x 1/8" LEADING EDGE
1/32" SHEET UPPERCAMBER
1/16" x 1/16" BALSA KEYS
STAB
PLAN
1/16" x 1/8" BALSA SPAR
3/32" x 3/8" BALSA TRAILING EDGE
1/32" SHEETING ON BOTTOM CENTERSECTION ONLY
SILK REINFORCEMENT
1/32" DIA. WIRE DETHERMALIZER HOOK.
1/16" SHEET BALSA GUSSETS
DIHEDRAL SKETCH
1 1/2"
NOTE: THE HIGH DIHEDRAL GIVES EXCELLENT TORQUE CONTROL AND HELPS WINDY WEATHER STABILITY.
0 1 2 3 4 5 6 7 8
APPROXIMATELY 1/8" UNDERCAMBER
PROP BLADE PATTERN
WEIGHTS
FUSELAGE AND TAIL GONE.....1.35 OZ.
WING AND FAIRING.....1.08 OZ.
STAB AND RUDDERS.....0.40 OZ.
NOSE BLOCK AND PROP.....0.70 OZ.
RUBBER (WITHOUT LUBRICANT).....4.80 OZ.
TOTAL 8.30 OZ.
CUT KEY FROM HARD BALSA AS SHOWN
3/32" DIA. DOWEL FOR WING FASTENERS
1/4" O.D. ALUM. TUBING—SLIP 1/8" O.D. MUSIC WIRE THRU WHEN WINDING.
1/16" DIA. HOLD DOWN DOWEL
1/16" SHEET BALSA STAB PLATFORM
3/32" SHEET BALSA NOSE REINFORCEMENT
1/20" SHEET BALSA TOP AND BOTTOM—CUT TO OUTLINE SHOWN
1/16" x 1/8" CROSSPIECES AND UPRIGHTS
SILK HINGE
FUSELAGE TOP VIEW
WRAP WITH SOFT COPPER WIRE AND SOLDER
1/20"
TENSIONER SPRING
1/16" BALSA SIDES
WINDING HOOK
1/16" PLYWOOD FACE
NOSE FRONT VIEW
440 SCREW AND NUT
1/16" I.D. RUBBER TUBING
BALL BEARING WASHER
NOSE SECTION
CUT CORNER TO FIT KEY IN NOSE
1/32" SHEET OVER FRONT OF FAIRING
1/16" PLYWOOD—CUT OUT FOR LIGHTNESS
NOTE SHAPE OF PROP SHAFT
NOSE REAR VIEW
1/16" SQ. BALSA TISSUE SUPPORTS
1/20" SHEET BALSA FOR FAIRING SIDE OUTLINE
5/32" x 5/8" BALSA
INCIDENCE BLOCK
FAIRING ASSEMBLY SKETCH
NOTE: FAIRING IS NOT MADE UNTIL FINAL INCIDENCE IS FOUND THROUGH FLIGHT TESTS.
TRIM TABS ON BOTH RUDDERS
1/16" MED. SHEET BALSA
STAB LEADING EDGE STOP HARD BALSA
RUDDER
REAR PEG REINFORCEMENT 3/4" SQ.—1/32" PLYWOOD
HATCH FOR ACCESS TO RUDDER
1/4" SQ. BALSA SHAPED AS SHOWN
1/20" SHEET BALSA SIDES—CUT TO OUTLINE SHOWN
C.G.
1/8" SQ. WING RESTS
1/8" x 3/8" WING REINFORCEMENT STRIP
3/32" SHEET TAIL REINFORCEMENTS
1/32" SHEET BALSA FORMER
FUSELAGE SIDE VIEW
RUBBER BAND
BEND HOOK FROM PIN AND CEMENT TO FUSELAGE
WRAP WITH THREAD
1/16" x 1/8" HARD BALSA STOP
KEY
3/32" SHEET BALSA
1/20" SHEET BALSA
FUSELAGE NOSE DETAIL
1/20" SHEET BALSA
LANDING GEAR STRUT CROSS-SECTION
NOTE: WHEN IN TAKEOFF POSITION RUBBER BAND PASSES BELOW PIVOT, LOCKING GEAR DOWN, FORWARD MOTION WILL RETRACT STRUT AFTER TAKEOFF.
NO WHEEL NECESSARY
1/32" DIA. WIRE PIVOT
1/16" DIA. ALUM. TUBING APPROX. 1" LONG
BEND HOOK FROM PIN
1/16" x 1/2" BALSA PLATFORM
BALSA STRUT
LANDING GEAR STRUT HINGE DETAIL
1/20" SHEET BALSA
FUSELAGE DETAIL AT RUBBER DOWEL MOUNT
1/32" DIA. WIRE FOR DETHERMALIZER HOOKS
FUSE
LIMIT STOP STRING
1/32" PLYWOOD
FUSELAGE REAR DETHERMALIZER DETAIL



SWAN SONG

"Designed in Canada" realistic flying boat for your new Cub .14 or an old Arden .099

By ANDREW G. LENNON



■ There are few thrills to compare with flying a well-designed model flying boat. A swift, smooth take-off, turning climb and glide and realistic clean landings provide much enjoyment. In addition there is a bonus of good fun and exercise to be had on the open water.

The design of a model flying boat offers a real challenge. One must design a boat and match it to a set of wings and a tail. It may fly but will it take off well or at all? *Swan Song* rates high in both respects. The culmination of a series of four water model aircraft, it incorporates the experience gained with each plus that gained with many conventional free flight models.

The hull is the long, planing tail tapered afterbody type based largely on data in N.A.C.A. Report 844 and Technical Note #1101. This type combines a deep pointed-step forebody, having low water resistance, with a very long tapered afterbody that extends back to the region where the tail surfaces are attached; thus no tail extension is required.

Such a hull has low resistance at both hump and take-off speeds; the longitudinal stability is less critical than conventional types and the directional stability on the water is excellent.

In order to obtain the low resistance at hump speed, the center of gravity has to be located aft of the step. This proves a decided advantage for a model designed to have its C.G. at approximately 75% of the wing chord behind the leading edge.

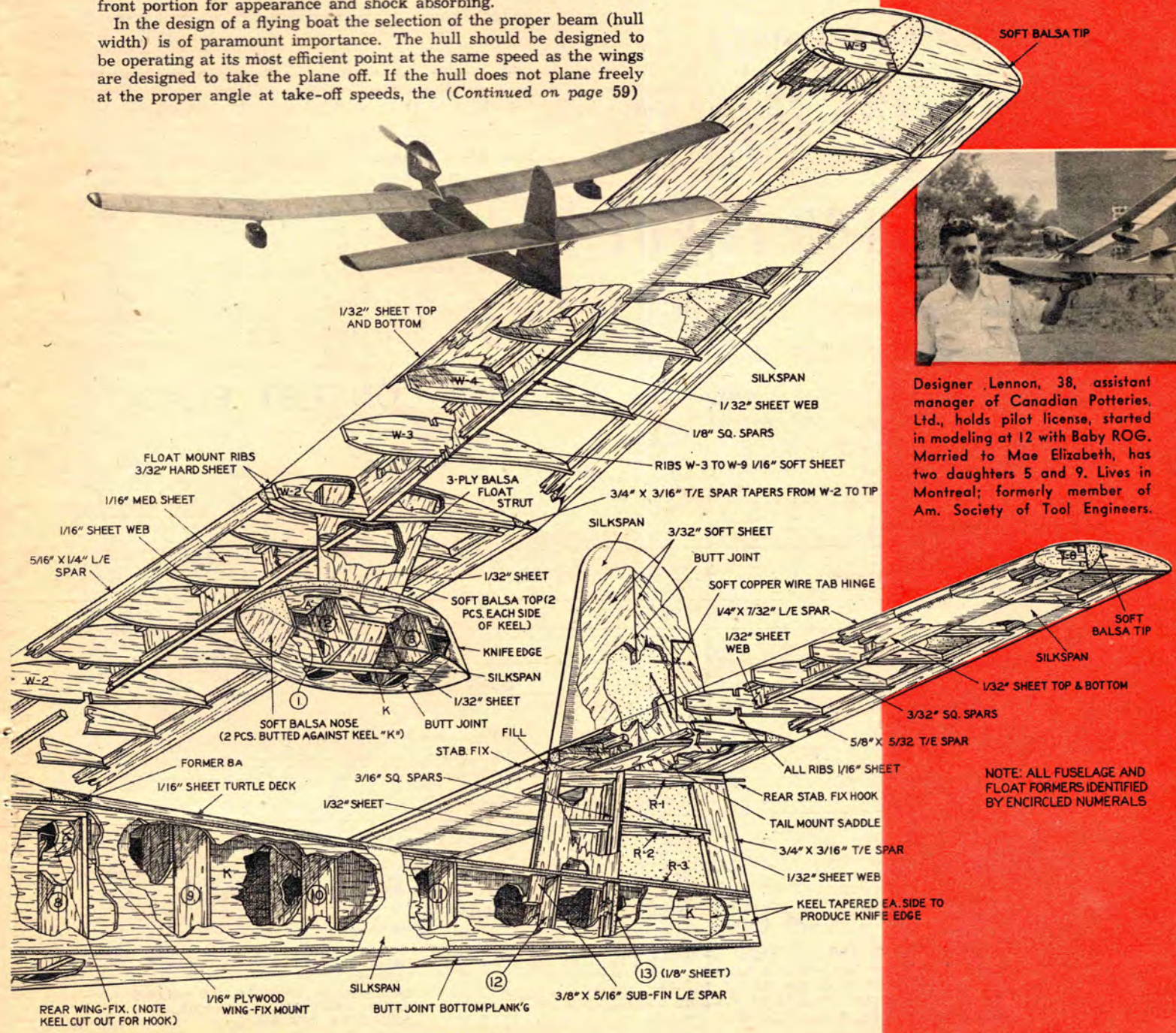
The planing surfaces of the hull were modified from full scale practice in that they were made flat for increased planing efficiency. The only justification for a deep "V" bottom is to absorb landing shocks and to reduce pounding which are of minor consequence at model speeds.

The forebody was lengthened somewhat to give a nosing-up effect on the glide-in landings, and a shallow "V" was incorporated in the front portion for appearance and shock absorbing.

In the design of a flying boat the selection of the proper beam (hull width) is of paramount importance. The hull should be designed to be operating at its most efficient point at the same speed as the wings are designed to take the plane off. If the hull does not plane freely at the proper angle at take-off speeds, the (*Continued on page* 59)

This "boat" uses NACA-developed Planing Tail Hull modified for model work; span is 75 in.; wing area, 325 sq. in., gross weight, 17 oz. Wing section is NACA 4612; stab, Clark Y. Tested first with small Arden, then flew on Cub .14. And it's good for R/C!

Designer Lennon, 38, assistant manager of Canadian Potteries, Ltd., holds pilot license, started in modeling at 12 with Baby ROG. Married to Mae Elizabeth, has two daughters 5 and 9. Lives in Montreal; formerly member of Am. Society of Tool Engineers.



NOTE: ALL FUSELAGE AND FLOAT FORMERS IDENTIFIED BY ENCIRCLED NUMERALS

ESPECIALLY for BEGINNERS

Taking the Mystery Out of Free Flight

While the experts may have various ways of adjusting their F/F models, this represents the best for the average fan

By FRANK EHLING

■ In our opening discussion last issue we presented the conclusions reached after an exhaustive series of *flight tests* with 27 different free flight configurations. It was found that a tilted stabilizer controlled "turn" in the glide and offset thrust opened up or tightened the power turn—depending on the amount applied or detracted. Further, with power-on our integrated series of test flights demonstrated conclusively that low-wing positions produced left turn while high-pylon settings gave right turn.

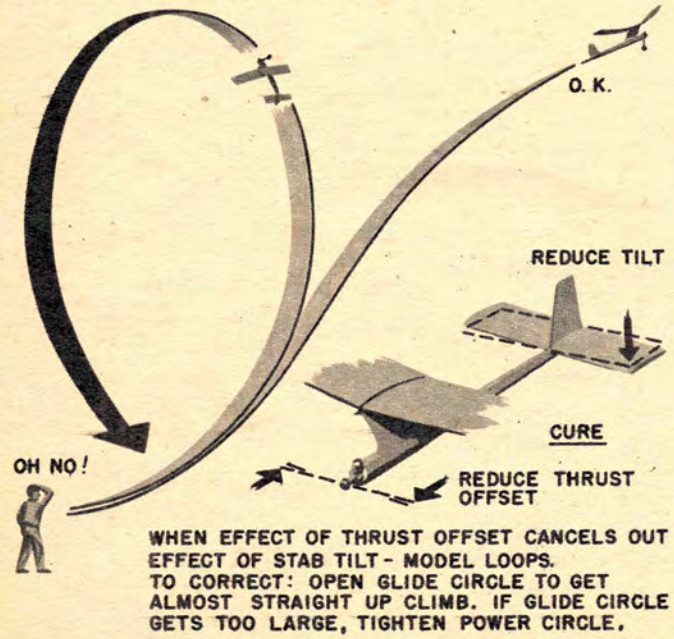
Now, while none of this may strike you as earth-shaking news, it did serve to indicate that fuselage lengths, pylon heights and wing-stab area relationships are not the major factors in the adjustment of contest-winning F/F craft . . . in spite of the jillions of words which have been written to that effect.

The excellent diagrams presented here are pretty much self-explanatory. But perhaps a few words will serve to emphasize our findings and assist the novice modeler. We start off with the loop—the bugaboo of many beginners. If you understand how to cure a loop then you're well on your way to becoming an expert.

Stop That Loop. Let's assume you have a model that loops every time. Try the model with low or reduced power. You'll find that the loop vanishes because the glide turn adjustment takes over when the model has reached its maximum climb and thus does not continue on over and down to complete the threatening loop. If additional power were to be applied on the next flight, then the loop would reappear. To change a looping flight to the desired climb for maximum altitude when the model glides in large, open circles, raise the stab's right tip (viewing from the front) and proceed with the test. As turn is added the glide may steepen; if so add a small amount of modeling clay to the tail end of the fuselage to flatten out the turn.

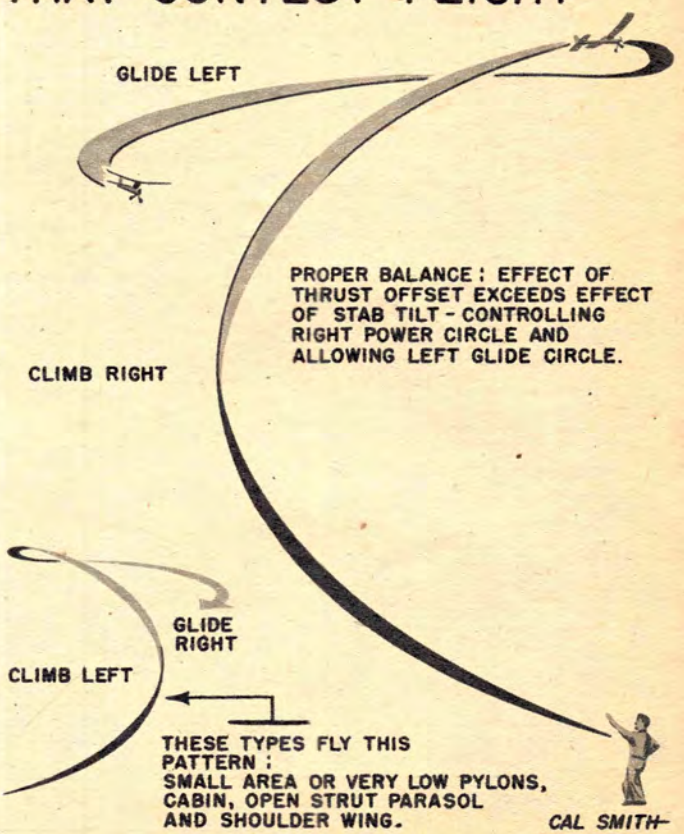
That Contest-winning Flight Pattern. This may surprise you—although you may have achieved a good climb your model still has not perfect power-glide relationship, for if it did it would loop. However, with proper "flight balance" the

STOP THAT LOOP !



WHEN EFFECT OF THRUST OFFSET CANCELS OUT EFFECT OF STAB TILT - MODEL LOOPS. TO CORRECT: OPEN GLIDE CIRCLE TO GET ALMOST STRAIGHT UP CLIMB. IF GLIDE CIRCLE GETS TOO LARGE, TIGHTEN POWER CIRCLE.

THAT CONTEST FLIGHT


GLIDE LEFT
PROPER BALANCE: EFFECT OF THRUST OFFSET EXCEEDS EFFECT OF STAB TILT - CONTROLLING RIGHT POWER CIRCLE AND ALLOWING LEFT GLIDE CIRCLE.
CLIMB RIGHT
GLIDE RIGHT
CLIMB LEFT

THESE TYPES FLY THIS PATTERN: SMALL AREA OR VERY LOW PYLONS, CABIN, OPEN STRUT PARASOL AND SHOULDER WING.

CAL SMITH

power has sufficient effect to overcome the glide turn adjustment and the model climbs steeply to the right. When the power is spent the glide turn "takes over," causing the model to go to the left. The power climb can be steepened by adding turn in the glide or by "opening" the thrust when you "zero" the prop or by increasing to a left engine offset. If the glide is O.K. and the climb is too steep, close the power circle by offsetting the thrust to the right.

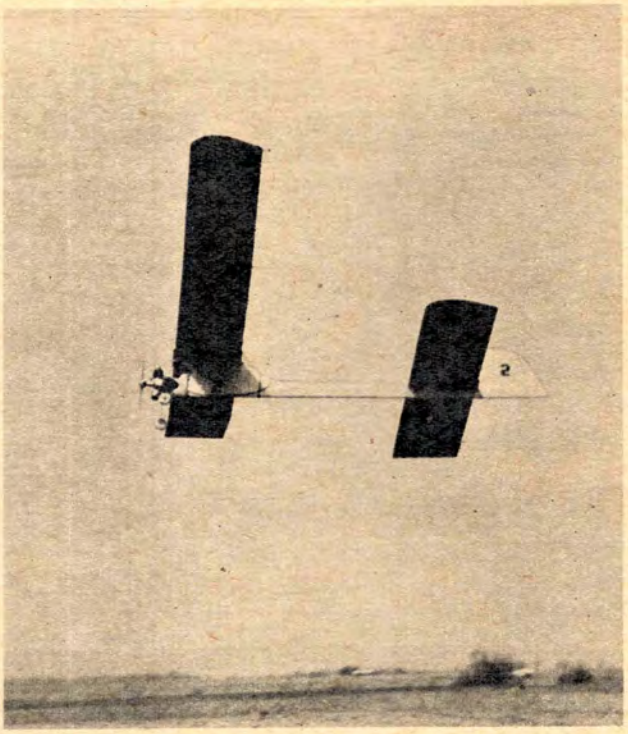
Turn Trim. When trying to turn a model in the glide, check to see that the leading edge of the "inside" wing (the one nearest the center of the turn circle) is not warped upwards, which would cause model to resist turning. This "wash-in" could mean you'd be applying excessive stabilizer tilt which would create unnecessary overall drag. If leading edge of outside wing is warped down ("washed-out") the same condition exists. Check constantly to see that the wing has not warped since this can happen with changes in temperature and humidity, especially on a newly covered model (undetected warping has been responsible for countless crack-ups). The thrust offset can be used to open or tighten the power circle by shimming the engine and slanting it in the direction of desired turn.

To get the desired glide turn without real fine adjustments, the tilting stabilizer can be used advantageously. This works like a vernier rudder adjustment. Keep the rudder dead center and as often as possible use a set-up where it is a permanent part of the fuselage. If cemented to the stabilizer, be sure to key the stab to assist in maintaining alignment of the rudder.

The stabiliber platform should be firm and light. It should not allow the tail to shake when the model is flown, for if we control the flight pattern of the model when we tilt the stabilizer, it can be quickly appreciated that we will have absolutely no control if the stabilizer jumps around. A loose stab will cause the tail end of the model to swing from side to side while climbing under power, and if allowed to go too far can finally result in that resounding "crunch."

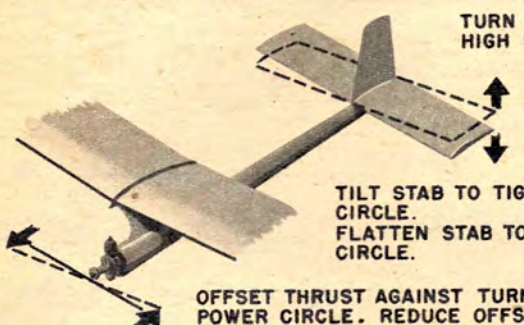
Trim Set-up Effects. The transition between power and glide on a high-powered free flight model presents a major problem. If the speed of your model were to remain constant during the entire flight fewer difficulties would exist.

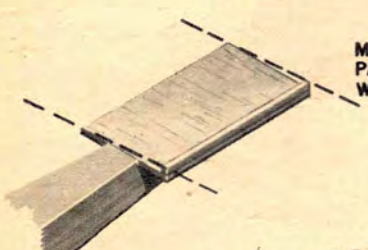
But with the correct C.G. location for a given angle set-up, this problem is minimized. Flying is simple *if* the wing is set approximately at 3½ to 5 degrees and *if* the C.G. falls within the wing chord and *if* the stabilizer is parallel with the thrust line and *if* the model is gliding in a near-stalled condition using only a tilted stabilizer for the glide turn.



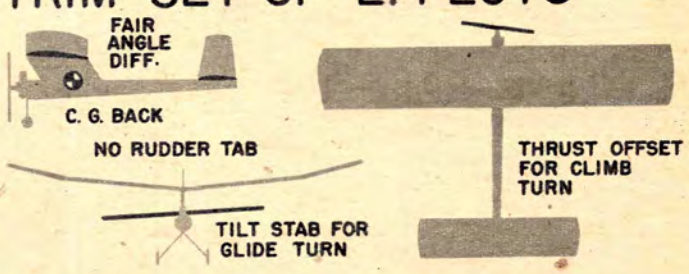
Test model #5 in the series of 27 different configurations (pylon #2, fuselage length #2) which produced this article.

TURN TRIM

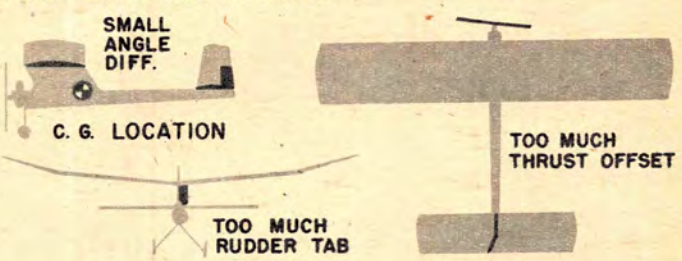

TURN TOWARD HIGH SIDE
TILT STAB TO TIGHTEN GLIDE CIRCLE.
FLATTEN STAB TO OPEN GLIDE CIRCLE.
OFFSET THRUST AGAINST TURN TO OPEN POWER CIRCLE. REDUCE OFFSET TO TIGHTEN POWER CIRCLE. BOTH OFFSET & TILT ARE WORKED TOGETHER TO CONTROL POWER IN CLIMB.



TRIM SET-UP EFFECTS



THIS IS GOOD TRIM SET-UP, MODEL IS FLYING CLOSE TO A STALL - WITH STAB TILTED (FLATTENING TURN) FOR GLIDE TURN AND THRUST OFFSET USED ONLY TO OPEN POWER TURN - SPIRAL CLIMB GOOD!



THIS TRIM SET-UP IS USED, BUT IS SPIRAL DIVE PRONE BECAUSE MODEL IS GLIDING TOO CLOSE TO A SHALLOW DIVE, SO THAT WHEN RUDDER IS USED, NOSE DROPS BELOW HORIZON CAUSING SPIRAL DIVE. FINE FOR R/C BUT NO GOOD FOR CONTEST FF!

Technical associate Ted Grzeszak with one of the many jobs developed by researcher Ehling to test the adjustment techniques revealed here. Use this article to instruct newcomers to free flight in the proper method of starting out with F/F jobs.

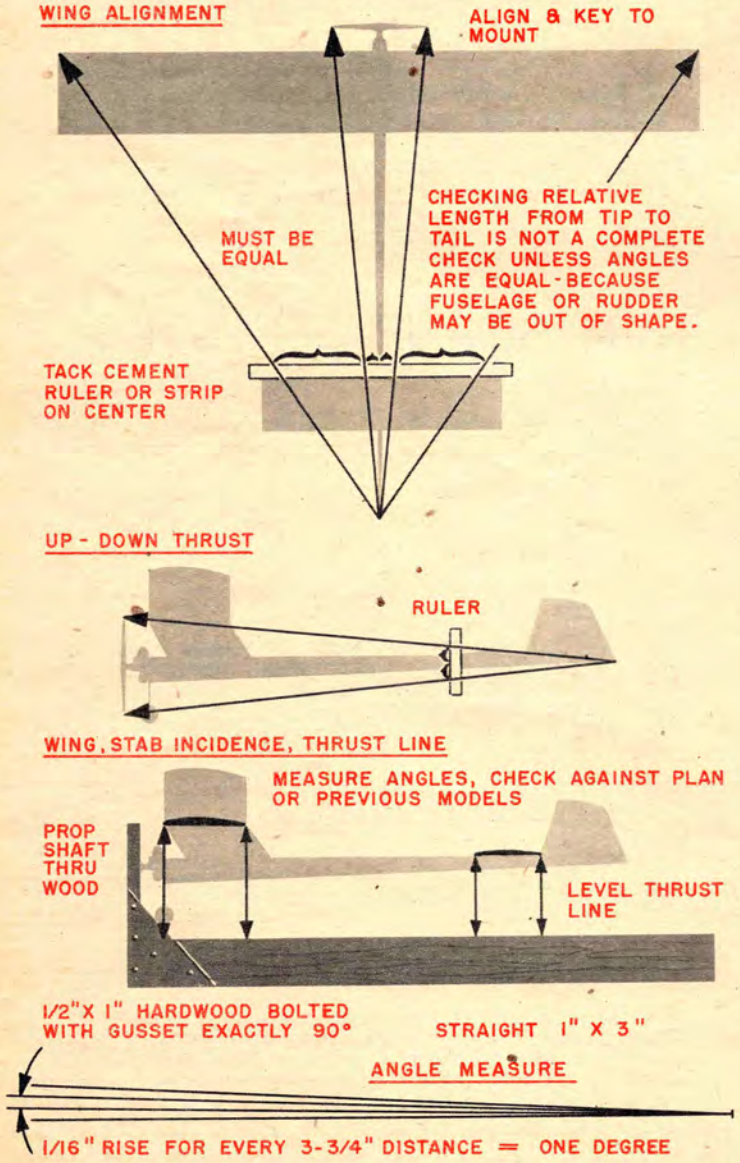
When your model is flying with this four-point set-up there is little chance of a spin resulting, for if some unforeseen turn develops the climb will lessen appreciably and corrections can be made on the next flight. On the other hand a spin can result from any increase in turn *if* the CG is farther to the rear, *if* the angular difference between the wing and stabilizer is small, *if* the rudder was used to obtain a glide turn and *if* the glide itself is on the verge of a dive. When your model flies in a fast, shallow climb after an ROG take-off any loss of lift due to a turn will allow the nose to drop and you'll end up in a spin. If this model is flown straight away and up from a hand launch a dishearteningly long pull-out will result when the power cuts. Frequently in such instances, because of a rearward CG position and where the angular difference is not great enough, the model goes into an inverted dive.

Checking Alignment. Aligning your model correctly by means of the alignment jig illustrated right after it is constructed can insure easier test flying. Corrections can be made by adding or subtracting angular differences—differences that are not visible to the average eye. It's a good idea to check your latest creation against another of the same design (if such is available) or against the plan you are using. Angular measurements can be computed; use the rule that 1/16" rise for every 3¾" travel of wing chord equals one degree. Follow the sketches and you'll see just how this checking should be done. Incidentally, when checking the angles on the wing, use the chord line rather than the bottom of the wing or stab.

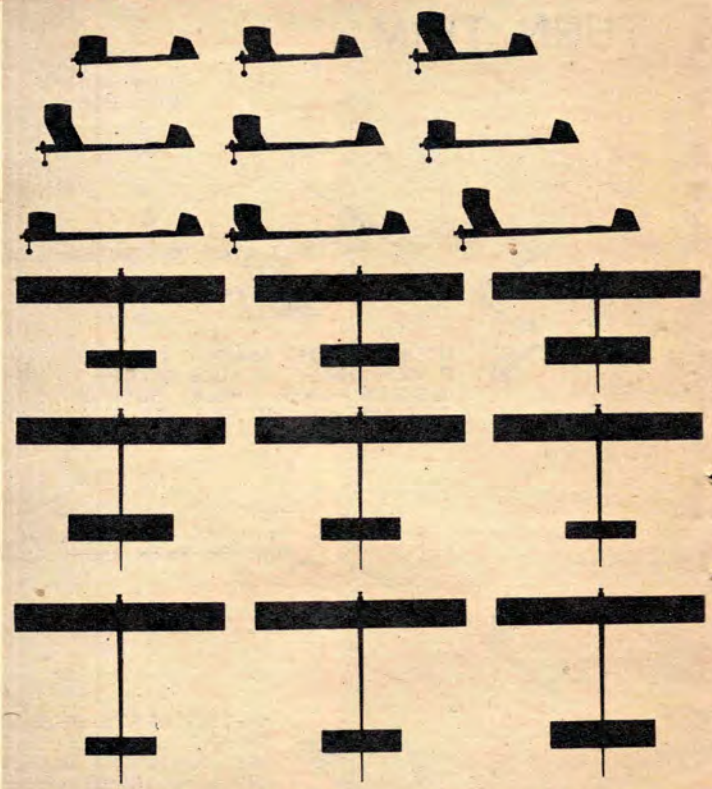
Testing. Whether the model is short or long, has a high aspect or low, remember that warps, insufficient angular differences along with improper CG location can cause more trouble than anything else.

Check the model for warps to see that this main source of annoyance is eliminated. Check to see that the model balances where indicated on the plan. Check to see that the angular difference is as indicated.

CHECKING ALIGNMENT


WING ALIGNMENT
ALIGN & KEY TO MOUNT
MUST BE EQUAL
CHECKING RELATIVE LENGTH FROM TIP TO TAIL IS NOT A COMPLETE CHECK UNLESS ANGLES ARE EQUAL - BECAUSE FUSELAGE OR RUDDER MAY BE OUT OF SHAPE.
TACK CEMENT RULER OR STRIP ON CENTER
UP - DOWN THRUST
RULER
WING, STAB INCIDENCE, THRUST LINE
MEASURE ANGLES, CHECK AGAINST PLAN OR PREVIOUS MODELS
PROP SHAFT THRU WOOD
LEVEL THRUST LINE
1/2"X 1" HARDWOOD BOLTED WITH GUSSET EXACTLY 90°
STRAIGHT 1" X 3"
ANGLE MEASURE
1/16" RISE FOR EVERY 3-3/4" DISTANCE = ONE DEGREE

EVER FLY 27 FREE FLIGHT DESIGNS?



Graphic illustration of the many models used. Each top-view shown was flown with 3 different height pylons.

Glide the model, remembering to see that you have a floating glide, rather than heaving it to make it land at the same approximate spot. While flying the model see that it is gliding to the left (if a pylon model) and to the right if one of the other types mentioned. This glide testing can best be carried on from an elevated area, so that the model can actually make some semblance of an arc before landing.

Check the engine to see that there are no unnoticeable thrust adjustments. If so, reset the engine to neutral. (You want to start test flying with zero thrust.) With the engine running slowly, set the timer for approximately five seconds and launch the model, letting it lift out of your hand at about 20 to 30 degrees. As power is increased the angle can also be increased up to 60 degrees.

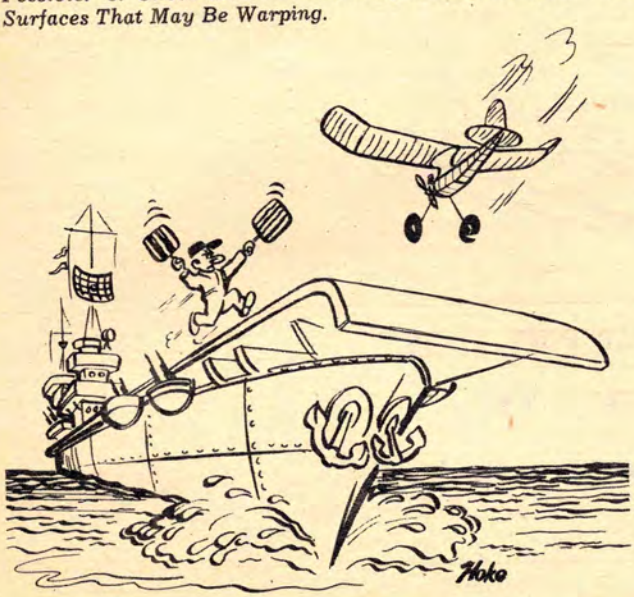
Observe the flight and with the foregoing information you should be able to tell approximately which way the model will turn, under power and in the glide.

Make all adjustments slowly, cementing in place any wooden shims used for tilting the stabilizer. Be sure that all the keys are doing their job. On the field the exhaust of your car is excellent for taking out any warps that may occur.

Glide Testing. When on the field and test-gliding a new model, be sure not to throw the model to obtain a glide. It is better to have it glide slowly; later reduce to the wing angle only if a "mush" is apparent (model settling as if dethermalized).

Normal Trim Set-up. If the model is misbehaving in testing check alignment again. If the stabilizer angle is changed the thrust line will also have to be re-set. If the model is of a new design and you have less than 5 degrees in the wing (which you have checked), do not reduce the incidence nor add positive to the stabilizer, but move the CG forward; this can be done by adding weight to the nose.

Summary. *1. Cover Model in Advance to Let Covering Season. 2. Check Alignment of Model. 3. Check for Warps in All Surfaces. 4. Check for Some Angular Difference between Wing and Stabilizer. 5. Check to See All Keys Are Making Contact. 6. Check to See All Shims Are Cemented in Place. 7. Check Model Each Time Prior to Competition if Possible. 8. Check Model Periodically While Flying for Any Surfaces That May Be Warping.*



TRIM ANGLES

ALWAYS MEASURE INCIDENCE ANGLES FROM CHORD LINE RATHER THAN BOTTOM OF AIRFOIL. DIFFERENCE MAY BE AS MUCH AS 4° DEPENDING ON AIRFOIL SHAPE.

SOME SMALL ANGULAR DIFFERENCE BETWEEN WING & STAB IS NECESSARY FOR GOOD STALL RECOVERY & FORE'N'AFT STABILITY

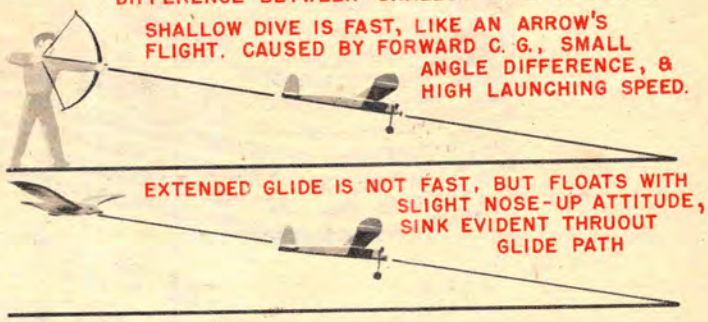
TAIL AT SAME OR GREATER ANGLE THAN WING IS BAD BECAUSE AS SPEED BUILDS UP, TAIL LIFTS CAUSING DIVE WHICH STEEPENS WITH SPEED — BLOOEY!

BIG ANGULAR DIFFERENCE IS ALSO BAD BECAUSE WING STALLS BEFORE STAB WITH VIOLENT REACTION, OR MODEL LOOPS AT HIGH SPEED.

THESE IMPROPER ANGLE SETTINGS RESULT FROM TRYING TO TRIM MODEL WHEN C. G. POSITION IS WRONG. THE TRICK IS TO SET WING AND TAIL ANGLES, THEN MOVE C. G. TO GET PROPER FLIGHT PATH.

GLIDE TESTING

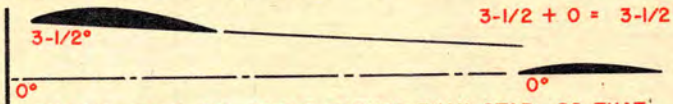
HAND GLIDING CAN BE DECEIVING, TRY TO LEARN THE DIFFERENCE BETWEEN SHALLOW DIVE & GLIDE.



SHALLOW DIVE IS FAST, LIKE AN ARROW'S FLIGHT. CAUSED BY FORWARD C. G., SMALL ANGLE DIFFERENCE, & HIGH LAUNCHING SPEED.

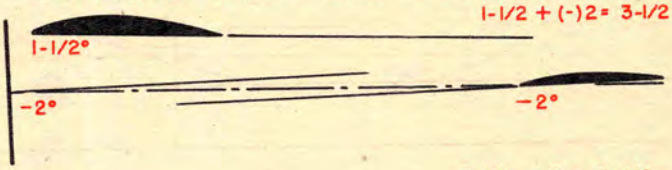
EXTENDED GLIDE IS NOT FAST, BUT FLOATS WITH SLIGHT NOSE-UP ATTITUDE, SINK EVIDENT THRUOUT GLIDE PATH

NORMAL TRIM SET-UP



CHANGE WING INC. ANGLE RATHER THAN STAB, SO THAT STAB REMAINS FIXED IN RELATION TO PROP BLAST, MAKING ADJUSTMENT EASIER

DOWNTHRUST IS ONLY RELATIVE — THE VARIATIONS SHOWN AMOUNT TO SAME SET-UP



- HALF PINT . . . 39¢
- PINT . . . 75¢
- QUART . . . $1.40

TESTOR CHEMICAL COMP

TESTORS "39"

...the outstanding *All-Purpose* fuel for every standard model engine!

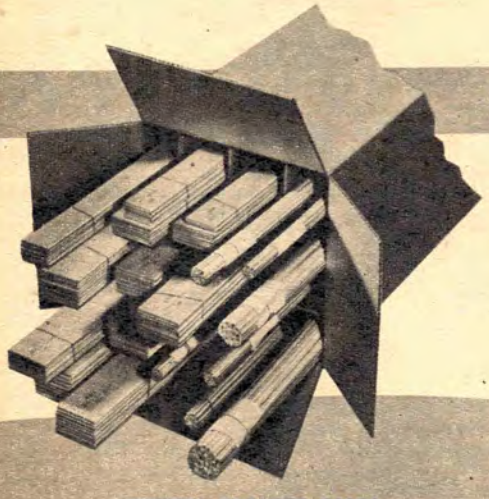
TOP POWER *formance*

...for stunt, contest, or just-for-fun flying

By every standard of comparison — easy starting, all-weather performance, power output, quality and quantity of lubrication — Testors "39" is the outstanding all-purpose fuel for all standard model engines. It was developed after many months of research; flight-tested and approved by experienced modelers under the most extreme conditions of stunt, contest, and just-for-fun flying. Try Testors "39" now. See for yourself what top *power*formance really means!

Insist on these other Testors Model Supplies, too

...by name!



TESTORS BRANDED BALSA

TESTORS DOPE

TESTORS PLAX

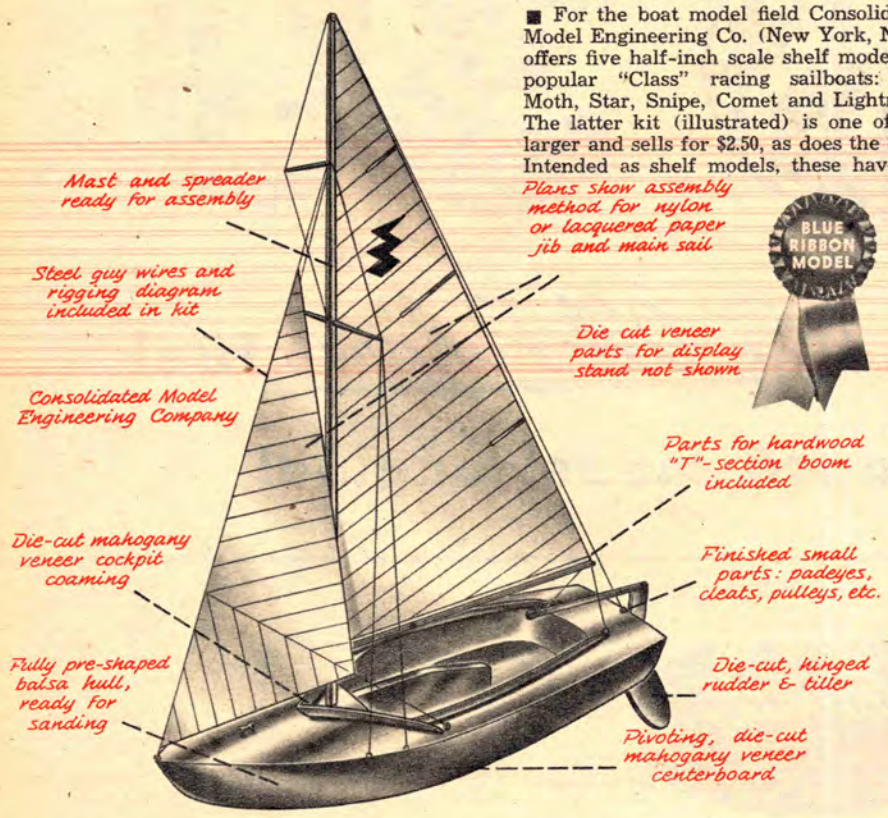
TESTORS MODEL AIRPLANE CEMENT

43

MPANY • ROCKFORD, ILLINOIS

Lightning

Consolidated's Shelf Boat Can Convert to Sail


Mast and spreader ready for assembly
Steel guy wires and rigging diagram included in kit
Consolidated Model Engineering Company
Die-cut mahogany veneer cockpit coaming
Fully pre-shaped balsa hull, ready for sanding
Plans show assembly method for nylon or lacquered paper jib and main sail
Die cut veneer parts for display stand not shown
Parts for hardwood "T"-section boom included
Finished small parts: padeyes, cleats, pulleys, etc.
Die-cut, hinged rudder & tiller
Pivoting, die-cut mahogany veneer centerboard

■ For the boat model field Consolidated Model Engineering Co. (New York, N.Y.) offers five half-inch scale shelf models of popular "Class" racing sailboats: the Moth, Star, Snipe, Comet and Lightning. The latter kit (illustrated) is one of the larger and sells for $2.50, as does the Star. Intended as shelf models, these have no sail materials included. However, if desired, they can be finished for actual use; CMEC offers an accessory kit of Nylon sail cloth and cord, lead keel metal, and all other parts needed to turn out a racing sailboat.

Lightning measures about 10½" overall in length and is 17" high from the bottom of the keel to the tip of the mast. The hull has a 3" beam, and comes fully carved. It just requires a bit of trimming at the two ends, then the usual finish sanding. The cockpit opening is completely hollowed out. Aside from the hull which is a balsa block, all other wood in the kit is of the "hard" variety. A sheet of die-cut mahogany veneer contains the keel, cockpit coaming, spray rails and rudder as well as parts for the mounting base. A shaped piece of ⅛" thick mahogany plywood forms the base for the mount.

The mast is in two pieces, accurately cut diagonally at one end, for ease in cementing. The mast is easily tapered and cut to an oval cross section.

The fittings envelope is full of tiny blocks, hinge parts for the rudder, and other necessary deck and mast items. It also contains fine music wire for the halyards and stays.

The plan carries full-sized top and side drawings of the model, many instructions, a bit of history on the prototype, and an action photo of boats in a race.

Right now there's a growing interest in boat models. You're off to a good start by building CMEC's "Lightning."

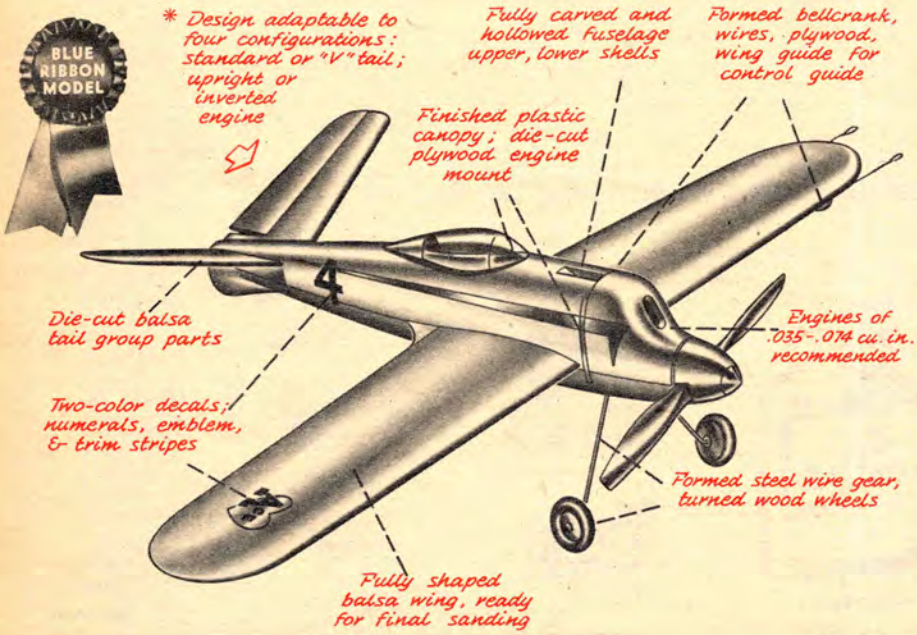
Four-Way Choice

Occo Lets You Choose One of "Four Bullets"

■ Here is a kit that allows the builder to exercise a choice. It is a 4-in-1 kit; you select any one of four different variations which may be built from the parts provided. Any one of the four configurations, incidentally, resembles a familiar team racer design.

A product of Occo of Omaha (Olson & Clark Mfg. Co.) this novel kit sells for $2.50. It's clear that the balsa wood has been carefully chosen for the job it is to perform. The fuselage is of clean soft, stock, the wing of a bit harder grade, and the tail parts of pretty firm material.

The fuselage is in two sections, split along the center horizontally; the two are notched for firewall and tail surfaces in such a way that they are bound to line up correctly, when you assemble them. You can make the ship with engine either upright or inverted—the cockpit opening is not cut till this decision has been reached.


* Design adaptable to four configurations: standard or "V" tail; upright or inverted engine
Fully carved and hollowed fuselage upper, lower shells
Formed bellcrank, wires, plywood, wing guide for control guide
Finished plastic canopy; die-cut plywood engine mount
Die-cut balsa tail group parts
Two-color decals; numerals, emblem, & trim stripes
Engines of .035-.074 cu. in. recommended
Formed steel wire gear, turned wood wheels
Fully shaped balsa wing, ready for final sanding

The formed landing gear wire is clamped in several layers of three-ply, which also serves as a mounting point for the engine. Wheels are of turned hardwood. The kit includes complete parts for the control system, most of which goes inside the fuselage. The lead-out wires run under the wing, with a ply guide at the tip.

The 16" wing has a thin symmetrical section and is tapered at the trailing edge with rounded tips. A little sanding on tips and edges readies this element for assembly. Tail surfaces are 3/32" sheet, and the plans show how the stab may be made in the conventional manner, or in butterfly form. Thus you have your choice of two fuselage styles and two stab forms.

The plans show full-size side views of both forms of engine installation, with Cub, Wasp and Torp engines up to .074. There are numerous assembly details, instructions, and pix of the various finished ships. A plastic cockpit canopy and a decal sheet enable the builder to do full justice to this very attractive model.

Enterprising modelers will probably dream up even more variations than the four already offered by Olson & Clark. You could probably work twin rudders with good success. For scale-like appearance wing tip tanks would go nicely or a napalm-type belly tank.

Clipper Ship

For Fun, Prizes or Payload, says Dmeco's Harold

■ Newcomer to the Dmeco fleet is the "Clipper," intended for Half-A PAA-Load or just plain sport flying. Produced by deBolt Model Engineering Co. (Williamsville, N.Y.) and designed by Harold deB., the ship meets latest PAA-Load rules. Span is 34"; area, 220 sq. in.; empty weight about 6 oz. Intended for any .049 engine, a Tornado 6/3 prop is recommended.

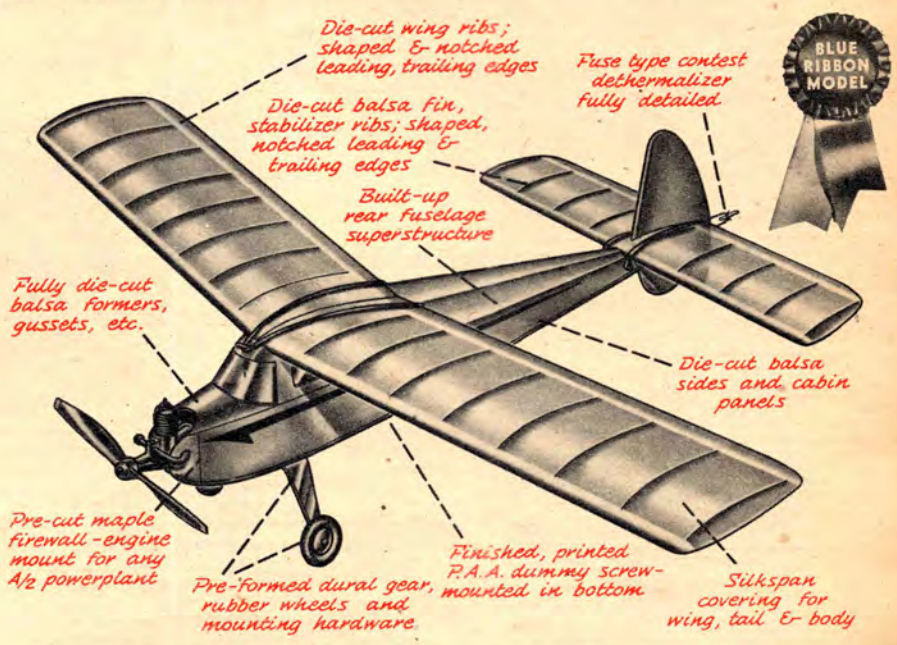
The fuselage is based upon two sides of 1/16" sheet with a 1/8" sheet bottom. All wood in kit is high grade, selected for the use to which it will be put. Upper portion of fuselage from cabin to stab is paper covered. Landing gear is "Cessna type" made from a single strip of dural, bent to shape. Axles are small steel machine screws; wheels are rubber. The PAA-Load "occupant" is furnished cut to shape and wearing a printed face, tie and collar and a double-breasted coat!

Both wing and stab have a flat-bottomed lifting section. Hard balsa leading edges are semi-finished; trailing edges are triangular shape; all are notched for the ribs which are die-cut, like other parts such as bulkheads, rudder parts and so on. The wing has a center spar of 1/8" x 3/8" balsa. Engine mount is maple, another maple block supports the landing gear which is mounted below the wing leading edge to assure good ROG characteristics—so necessary for PAA-Load flying.

The rudder is two sections of 3/32" balsa; there's a sub-rudder of the same stock which serves as a tail skid. HdeB calls for a fuse-type dethermalizer.

Covering is Skysail tissue. Plans are full size. The design is so simple a beginner should have little trouble following them.

To produce an easily made wing and stabilizer, the designer has incorporated a constant-chord section which provides plenty of lift and a minimum of construction time. Wing area works out to 220 square inches. Bare weight is 6 ounces; loaded and ready to go the Clipper grosses 10 ounces. To eliminate wood charring, Harold shows the dethermalizer fuse fitting into a 1/8" aluminum tube which acts as an effective snuffer. For the dethermalizer set-up the stab's hinged at front edge.


Die-cut wing ribs; shaped & notched leading, trailing edges
Fuse type contest dethermalizer fully detailed
BLUE RIBBON MODEL
Die-cut balsa fin, stabilizer ribs; shaped, notched leading & trailing edges
Built-up rear fuselage superstructure
Fully die-cut balsa formers, gussets, etc.
Die-cut balsa sides and cabin panels
Pre-cut maple firewall - engine mount for any A/2 powerplant
Pre-formed dural gear, rubber wheels and mounting hardware
Finished, printed P.A.A. dummy screw-mounted in bottom
Silkspan covering for wing, tail & body

Famous WWI Fighter

Fokker's Biplane Pursuit Is Just Fine for Lines

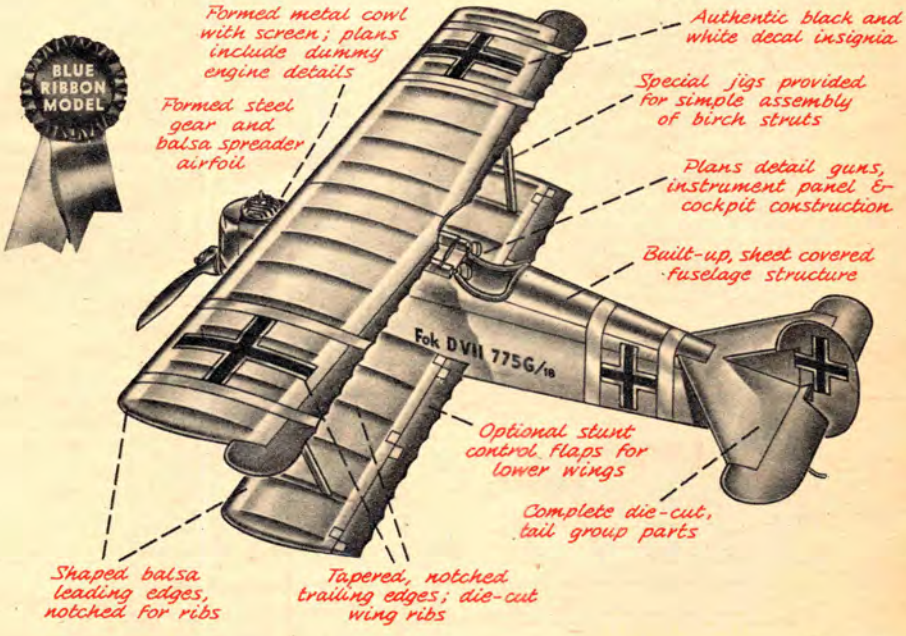
■ Long famous for realistic scale planes, Sterling Models (Philadelphia, Pa.) has now added the World War I fighter, Tony Fokker's D VII. Not only is this model a fine scale copy, but it has been made into a hot stunt ship too. The biplane wings of the original plus large tail surfaces make it a "natural" for extra fast maneuverability. The model is large—it has a spread of 32½", is 27" long, and calls for engines from .19 to .45. With the latter it can do more tricks than Tony himself! This is a $5.95 kit with many deluxe features.

The fuselage is built up upon a "deck" die-cut from 3/16" thick balsa, and notched out in the center so bulkheads may be slipped in and positioned accurately. The fuselage ends up sheathed in balsa, and should prove very rugged. The radiator shell of the original is reproduced nicely by a sheet metal stamping; also furnished is metal screening to go inside the shell. Because of the low thrust line of the large D VII, the engine cylinder head is hardly visible in the model; the plans show how to make a dummy engine to further enhance realism.

Both wings have a symmetrical cross section—though they are to scale otherwise, even to the scalloped trailing edges, which are of 3/32" sheet. Wing leading and trailing edges in the kit are fully shaped and notched for ribs, the latter being die-cut. Strips of 1/4" x 5/32" white birch are for the center section and interplane struts. Tail surfaces are die-cut 5/32" thick balsa sheet.

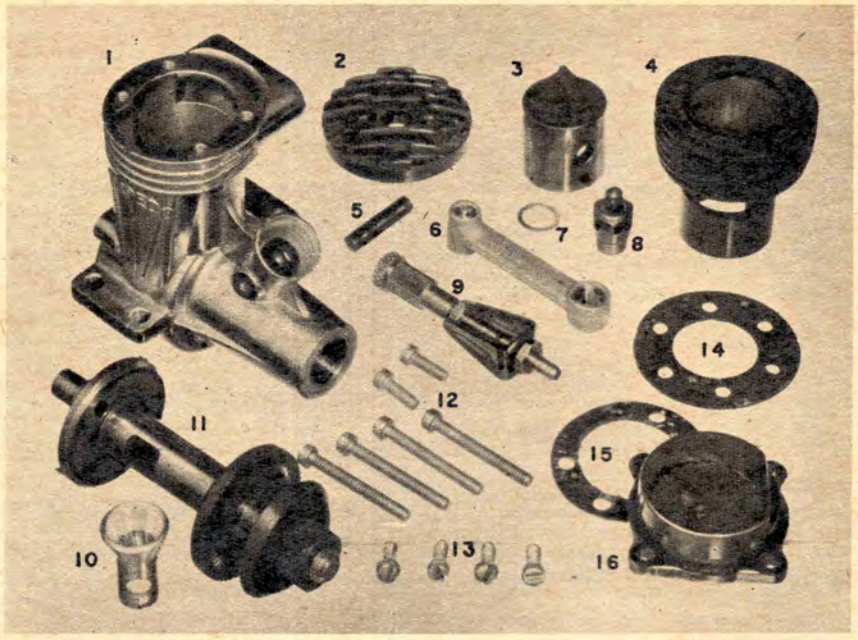
The plans are super-detailed. While this could not be considered a beginner's kit, the many assembly views and the voluminous instructions cover all difficult building points. Gas model tissue is furnished for wing covering, and there is a large decal sheet with four large and four small black crosses, plus authentic Fokker fuselage designations.

Other flying scale control line kits in the Sterling stable are the famous Monocoupe of 3 foot span; Ben Howard's prewar "Pete" low-wing racing plane with 30" span; Ben's utility racing cabin plane, Mr. Mulligan with a 32" wing; Waco cabin biplane of 33" span; gull-winged PZL Polish fighter of the '30's with 3-foot span; a 32" SE-5 and 3-foot Ryan S-T sport-trainer.


Formed metal cowl with screen; plans include dummy engine details
Authentic black and white decal insignia
BLUE RIBBON MODEL
Formed steel gear and balsa spreader airfoil
Special jigs provided for simple assembly of birch struts
Plans detail guns, instrument panel & cockpit construction
Built-up, sheet covered fuselage structure
Fok D VII 775G/18
Optional stunt control flaps for lower wings
Complete die-cut, tail group parts
Shaped balsa leading edges, notched for ribs
Tapered, notched trailing edges; die-cut wing ribs

K&B 23

Looks like her sister who's 19, but she goes like "60"



■ A great stir was created in the model world last season when the K&B Torp .19 took over the Class A speed record. Now K&B comes forth with a new .23 engine embodying most of the features of their .19, with the green head designating their 1953 line.

Outward appearance and overall weight are the same in both engines, the .23 having a larger bore to gain the extra displacement. The crankcase is the same size so the .23 has a higher base compression ratio with resulting stronger fuel suction. Port areas and the carburetor diameter are also the same, and this further aids in feeding fuel better at low and medium speed, making it suited in addition to sport and stunt flying.

Outstanding in the design of the engine is the large diameter crankshaft. This has been done to make room for a large rotary valve and air passage through the shaft. A special alloy steel is used and the bearing surface is ground after machining. The shaft runs in a generous bronze bushing securely anchored in the base casting. Fine-grained cast iron or "Meehanite" is used for the piston. This material has excellent bearing properties and will not seize or score the cylinder.

A curved baffle is machined on the top for efficient scavenging of exhaust gases. The inner surface is machined out with sufficient metal left at the wrist pin; the sides are milled out to reduce weight. The outer bearing surface is relieved slightly to reduce oil drag and make the engine easier to break in. The cylinder and cooling fins are machined in one piece. With this type of construction the fins brace the thin cylinder wall and hold it in shape in spite of the usual high temperatures and pressures encountered during operation.

The cylinder head is made of die-cast aluminum and carries nine cooling fins. The lower surface is curved to match the piston baffle and give a smooth flow of gases for scavenging. A high-pressure die-casting is also used for the crankcase. This has a generous smooth bypass for transferring fuel from the crankcase to the upper cylinder. Two composition asbestos gaskets are used for attaching the cylinder to the base and the cylinder head to the cylinder.

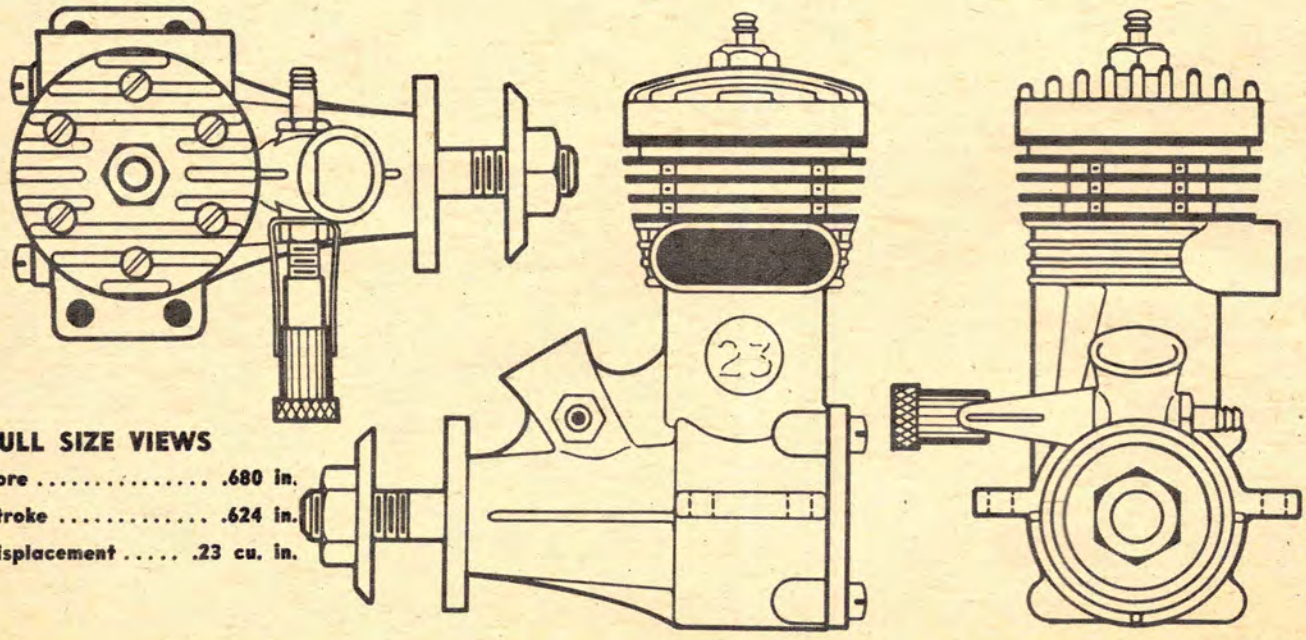
During the engine test starting was easy at all times. A medium to heavy prime in the exhaust gave best results. Priming with fuel in the carburetor caused flooding and required about half an hour of running to give good results at high speed. So don't prime the carb. Running was continued for three hours and a 9/4 K&B propeller was used. Removing the venturi sleeve produced very little gain in speed in the low speed range, but about 1000 rpm gain at high speed.

The fuel suction test shows a total variation of 16 inches in fuel tank height. This is very good for a .23 displacement engine and can be attributed to the venturi sleeve, high-base compression and a moderately high head compression ratio.

Parts Illustrated

1. Crankcase: die-cast aluminum, 1.57 oz. 2. Cylinder head: die-cast aluminum, 1¼" dia., .35 oz. 3. Piston: cast iron, .680" dia. x .643" long, .27 oz. 4. Cylinder: steel, .680" bore x 1 3/16" long, 1.05 oz. 5. Wrist pin: hardened steel, .155" dia., .03 oz. 6. Connecting rod: forged aluminum, 1¼" long, .08 oz. 7. Glow plug washer: copper, .022" thick. 8. Glow plug: steel, ¼-32 short thread, .09 oz. 9. Needle valve assembly: brass, .24 oz. 10. Venturi sleeve: aluminum, .242" dia., .02 oz. 11. Crankshaft: steel (ground), .375" dia. shaft .218" dia. crankpin, 1.02 oz. Drive washer: steel, 1" dia., 32 oz. Propeller washer: steel, ⅞" dia., 18 oz. Propeller nut: steel, ¼-28, .11 oz. 12. Cylinder head bolts: steel, 4-40, .17 oz. 13. Back cover bolts: steel, 4-40, .06 oz. 14. Cylinder head gasket: asbestos, .020" thick. 15. Cylinder gasket: asbestos, .020" thick. 16. Back cover plate: die-cast aluminum, .22 oz.

(*Continued on page 74*)



FULL SIZE VIEWS

Bore ..... **.680 in.**
Stroke ..... **.624 in.**
Displacement ..... **.23 cu. in.**

Be Sure to Get MONOGRAM Speedee ★ Bilt MODELS

G-14 Corsair F4U-5

Tops in Quality..Value..and Year 'Round Fun!

Only Speedee-Bilt gives you such detail, such realism, such super models and so much enjoyment. Get a Speedee-Bilt kit packed with molded plastic and other finished parts today. Build a model that will make you proud.

G-12 Hellcat

Panther Jet
Kit G16

NEW
Air Force—Navy Plane Models
$1 Each

15 Other Models
85¢ Each

Thunderbolt
Kit G17

G-5 Boeing Kaydet

G-15 Warhawk P-40F

G-4 Ercoupe

Every Speedee-Bilt Box is Chock-Full of the Finest Airplane Parts You Ever Saw!

G-2 Aeronca

G-11 Navion

Illustration shows Thunderbolt P-47 kit. A typical Speedee-Bilt kit. Contains Prefabricated Fuselage, Patented Monofoil Wing, Precision Cut Tail Parts. Decals, Rubber Wheels, Power Rubber, Detailed Plans, and 14 Plastic Parts including Prop, 4 Rockets, 2 Landing Gear Struts, 2 Sets Machine Guns, Pilot, Engine Cowl, Canopy, Tail Wheel and Exhaust.

G-7 Cessna Seaplane

G-6 Long Midget

G-3 Monocoupe

G-10 Thunderjet F-84

G-1 Piper Cub

G-13 F-86 Sabre Jet

G-8 Spad Pursuit

G-9 F-51 Mustang

At Your Favorite Store

Get Speedee - Bilt and other Monogram Models at your local hobby shop. If none near you order from address below. Remit 25c additional to cover packing and shipping.

Monogram Models, Inc. 3421 WEST 48TH PLACE CHICAGO 32

MODEL AIRPLANES • SHIPS
JET POWER RACERS

Pop'll agree that a free flight kit is a welcome gift for any Father's Day!

NOW
WITH THE ADDITION OF THE EXCLUSIVE "SECRET" PROCESSES OF THE

SCIENTIFIC
OIL ENGINEERING CO.
(TOPSOL PRODUCTS)

francisco fuels

ARE THE ONLY FUELS PROCESSED 4 WAYS FOR YOUR PROTECTION

You will be pleased to learn we have recently acquired the several exclusive "secret" processes of the above-named firm which include: A method of processing anti-rust detergents for addition to our alcohol fuels. This eliminates the common, distressing cause of deterioration and "instability" in your glow fuels caused by rust particles being picked up from inside container walls—as well as protecting your engine parts. Other methods include processing certain fuels to otherwise protect against spoilage . . . and last minute "heartaches" and lost "wins." Added to our own developed processing methods which have proved themselves AS BEST FOR RECORD BREAKING PERFORMANCE BY FAR—you can depend on—and should remember to specify FRANCISCO FUELS.

the ONLY FUELS with volatane control

the ONLY FUELS which are truly acclimatized

the ONLY FUELS fortified and processed against spoilage

the ONLY FUELS and castor oil with ANTI-RUST protection

HAVE BEEN WON BY francisco fuels than all other prepared fuels combined.

FUEL OF THE CHAMPIONS
Based on 30 years' experience
From the World's Best-Equipped Racing Fuel Laboratories
There is a specially processed FRANCISCO FUEL for every engine size, type and operation requirement.
Ask your dealer for the one designed for your engine.
Also Treated Degummed Castor Oil Concentrates.

THE MOST RESPECTED FUEL IN THE WORLD
FRANCISCO LABORATORIES
FIRST • LARGEST • BEST EQUIPPED
3015 Glendale Blvd. • Los Angeles 39, California

Make Dad "admiral" of his own model boat flotilla! "Pa's Day" is the time to start him off.

Air Trails RADIO CONTROL MODELS

McENTEE ON R/C: Poor-Man's Compound Escapement

■ Most of those who have tried the Bonner Compound "sequenceless" escapement concede that it takes most of the headaches out of rudder operation, as far as trying to remember what turn comes next. The Bonner is not always easily available, however, and then there are those who just like to tinker.

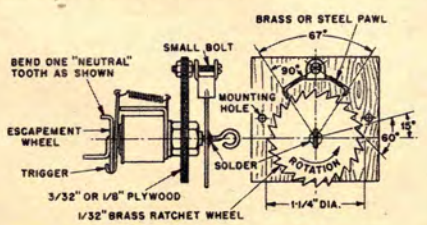
One of the latter is PFC Robert Dickman (whose R/C tinkering is a bit curtailed at the moment, due to Uncle Sam), Camp Kilmer, N. J. A builder of some 14 years' experience, he is now an R/C convert, and flies a modified Brigadier, and also a Bootstraps. The Brig was flown with an O&R (wow! *our* Brig can't even handle an OK Bantam—and stay down within sight), but the engine had to be plugged down and the prop reversed.

The escapement is a modified Super-Aerotrol that has been converted into a compound style, as shown below. Only change on the escapement itself is to bend one of the neutral teeth on the rotor so it does not catch on the stop arm. Then you have to make a governor as shown. Bob cut his wheel out of tin, but brass should be better. The teeth are formed with a triangle file. If the escapement turns too fast—that is, if you find you don't always catch the second position, add a bit of solder to each side of the pawl.

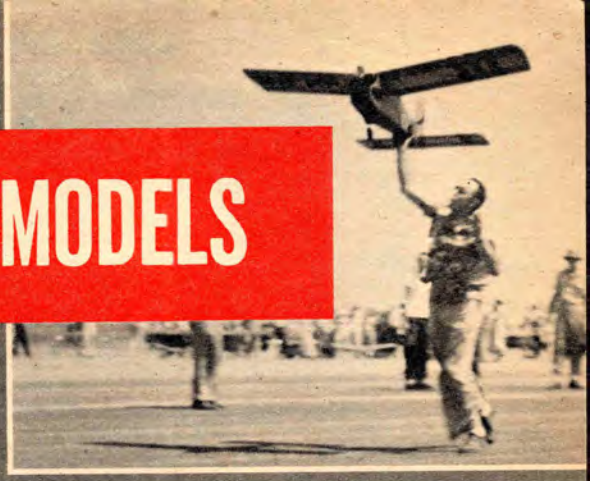
Clubs and Contests. Radio Modellers Association (meetings first Thursday of each month at Victory Villa Community House, Martin Blvd., Baltimore) installed new officers recently, as follows: Pres., Leonard Chioma; V. P., Joe Dietz; Sec., Tony Filangeri; Treas., Joe Winter. Those interested can reach Leonard at 6127 Alta Ave., Baltimore 6.

New model club has been formed in New York State area comprising Albany, Troy and Schenectady. All types of modeling are included, but there is strong undercurrent of R/C. Info from Bill Van Steinburgh, c/o Harper's Music Store, 123 N. Pearl St., Albany.

One club that is having growing pains is the DC/RC. Bill Nesbitt writes that they have over 50 members, and at a recent meeting we know there were 61 people in attendance! Many of the active flyers favor the audio tone receiver developed by Walt Good (A. T. will have dope on this in a later issue), while transmitters of a type designed by Jim Martin and Don Clark are popular. We understand Don (*Continued on page* 53)



BIG MEETS IN REVIEW: R/C AT THE NATS

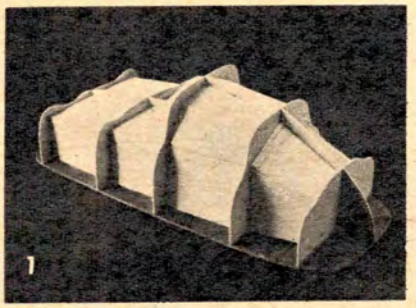


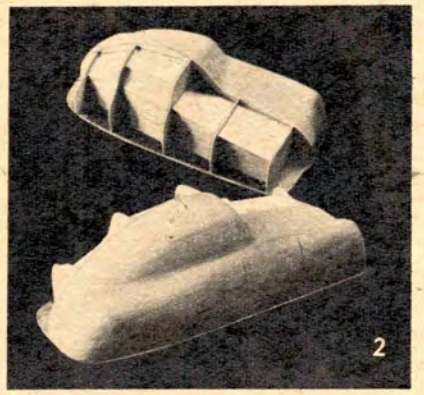
Jack Williams gets Claude McCullough's "monster" off during last Nationals.

Charles H. Suegfried of Wichita and his "flying telephone exchange!" That's his son, an AF Capt., in hot pursuit.

Andy Bauer and "Susie"—who responds to an original 2-RK61'er on 54 mc. From Long Beach, Cal., AB's station W6RLI.

Sixteen years old and still going strong: Web Hill's old F/F flies with MacNabb unit. Pipe the bracing, partner.





If you've ever modeled in clay (and what person hasn't?), you'll find it a cinch to turn out a realistic scale auto body. Balsa wood cross sections 1 through 5 are cemented to a ⅜ inch baseboard along with a center keel. Baffle sheets (photo # 1 above) go between formers to save on amount of modeling clay required. Fill in with clay; when fairly dry coat with Vaseline. Then the "Fabri-Weld" (fabric and Weldwood glue) strips are put on "mummy" wise.

R/C Model Sports Car

Here's the miniature Porsche to fit your radio-controlled auto chassis presented in June Air Trails

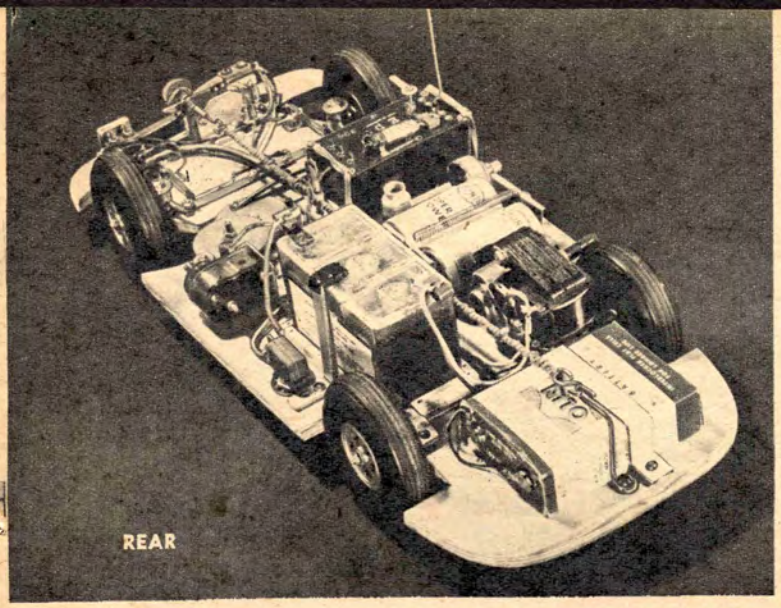
■ Have your driving habits improved lately? Are you still making improper turns? What about those figure eights in the middle of the road? Of course I'm speaking of your driving antics with your R/C Mobile T.V. Truck (Air Trails, June 1953 issue, pgs. 80 and 81) or perhaps just the chassis. But if you have passed your driving test, you're just about ready to get behind the "keying button" of one of those sleek foreign sports cars.

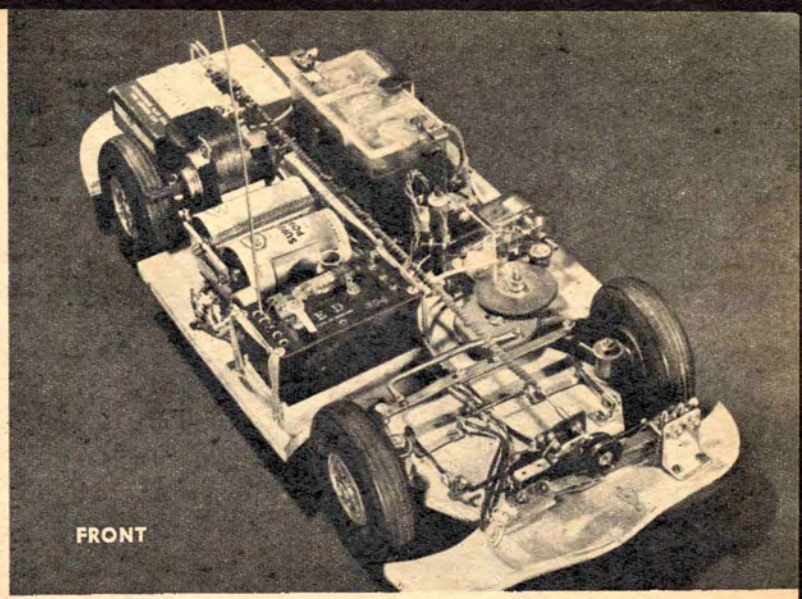
After Al Lewis, Howard McEntee and I had decided on the basic requirements for operation and realizing the amount of equipment necessary to do the job, it became quite apparent that a fairly wide model was necessary. The size of the Willard wet cell canceled out any thought of a racing car or even a convertible unless of course the top remained up, and that didn't seem too practical. (Incidentally—the battery charging diagram in the last issue was incorrect; the red terminal should connect to the positive side of the battery, the black post to the negative side!)

The scale of the car was dependent solely on the wheels available. The largest economical size were 3" Veco wheels. This emphasized the fact that scaling an American car to this rather fixed wheel diameter would result in a long and narrow model with too (*Continued on page* 62)

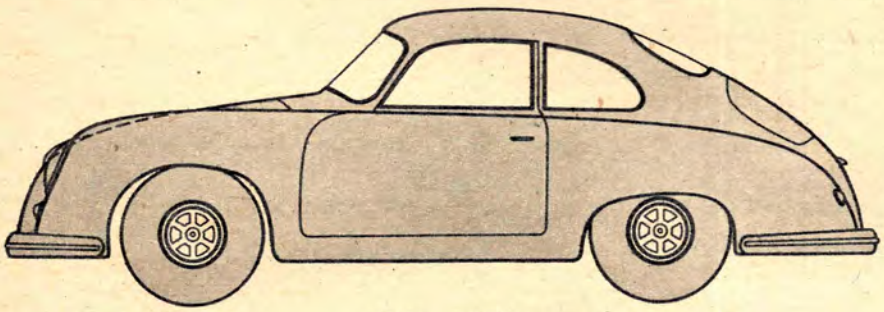
By AUBREY KOCHMAN

The real Porsche owned by Bill Campbell from which the radio-controlled model was copied poses (left) before Hell Gate Bridge in Long Island City, N. Y. A "combined operation," the R/C chassis was developed by H. G. McEntee, the sports car body by "Red" Kochman. The mini-Porsche was a hit at Herb Shriner's International Motor Sports Show in NYC where it appeared on TV and won top honors for "best finished car!" Trophy 'n' all!

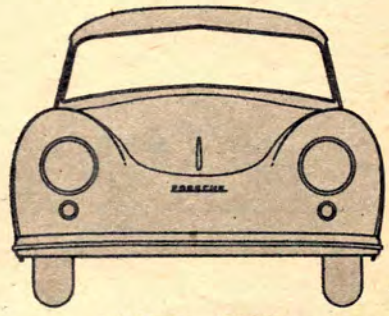




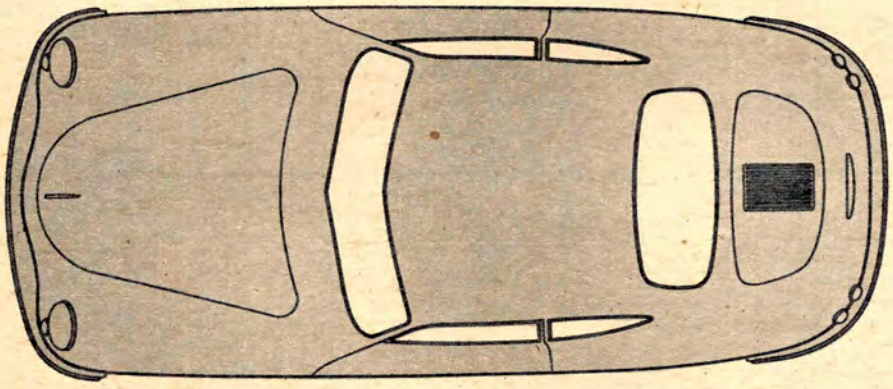
She's not so complicated as you might think. See June "AT" for chassis schematic and wiring layout.



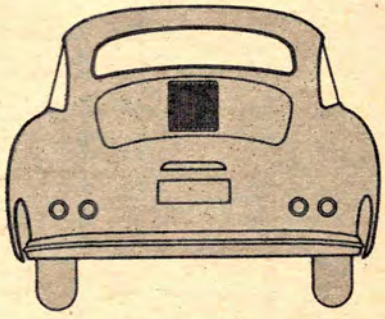
SIDE VIEW



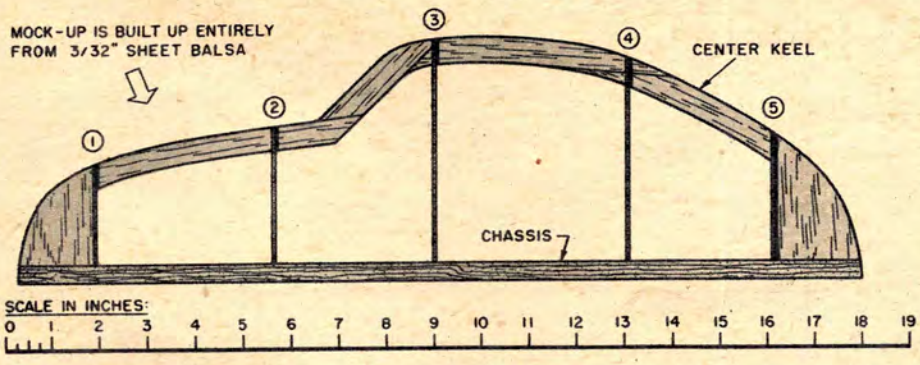
FRONT VIEW

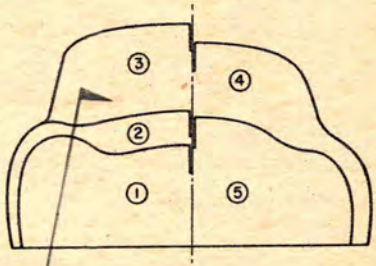


TOP VIEW

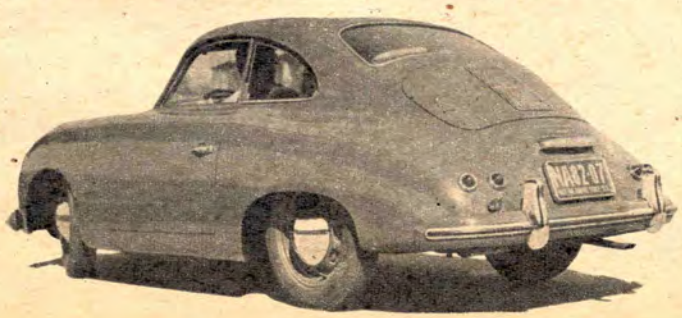


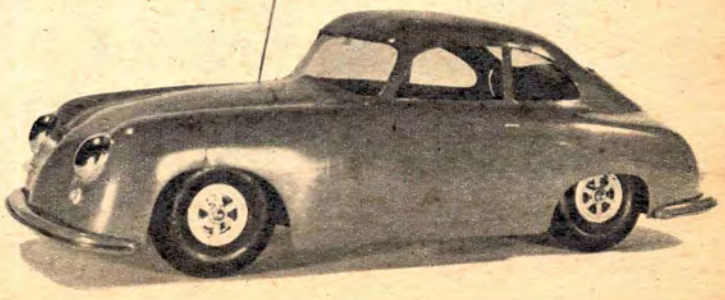
REAR VIEW


MOCK-UP IS BUILT UP ENTIRELY
FROM 3/32" SHEET BALSA
CENTER KEEL
CHASSIS
SCALE IN INCHES:
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



PLANS BY AUBREY KOCHMAN





Frank's Big BUTTER/CUP

By FRANK VAN BUREN

■ When she's making a 180-degree turn over the far end of the field, your R/C Buttercup (above, left) looks for all the world like a real plane coming in for a landing.

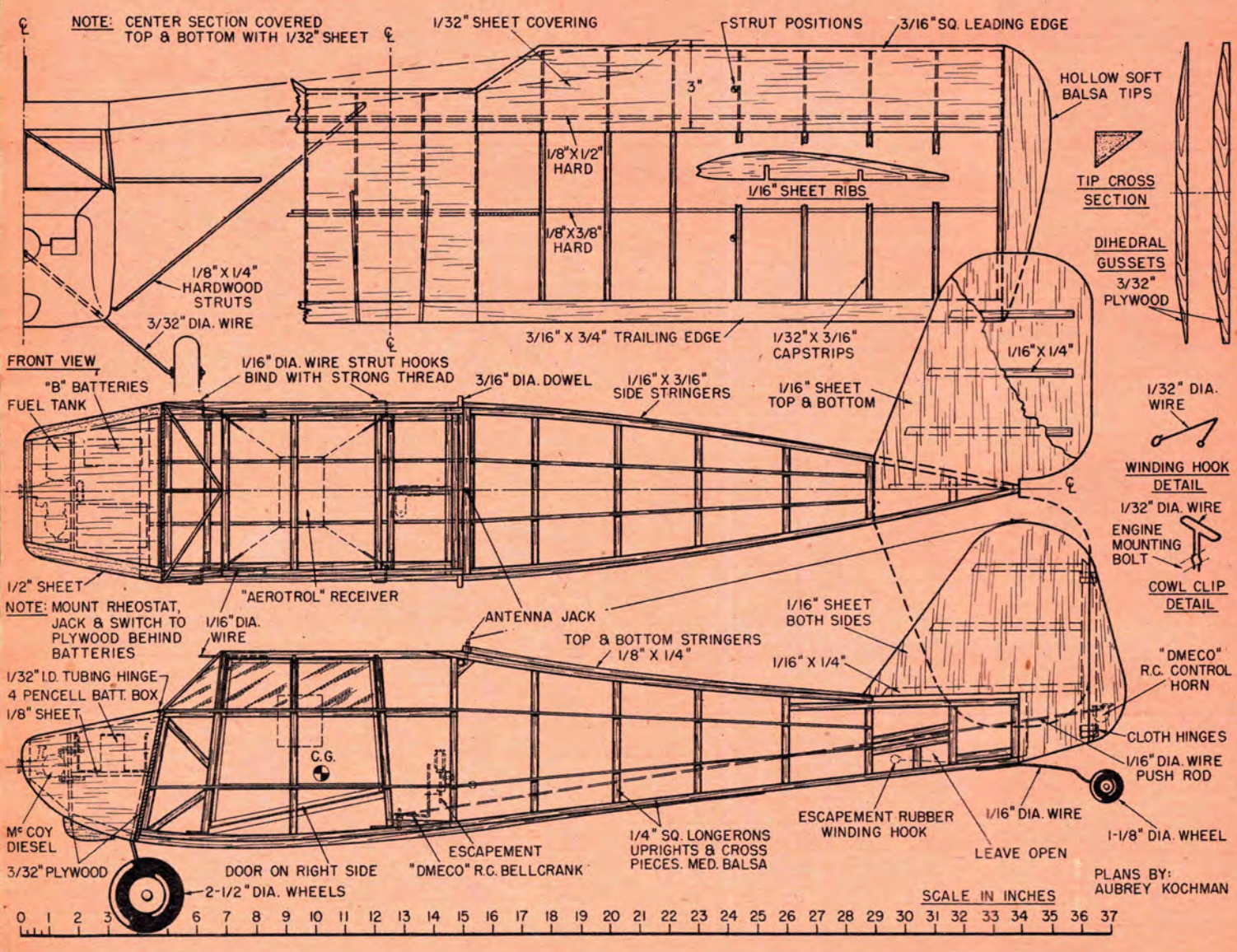
When flying you have the satisfaction of operating a model that can fly slowly in a shallow climb without unwanted erratic maneuvers. After the initial launching we handed the "key" to an onlooking policeman who, after a few miscues, soon had the model under complete control; now he is awaiting the full-size plans and is fully sold on R/C!

When we first chose the Buttercup for a scale model it was for the .02 Infant free flight—above, right (see also page 31.) This proved an exceptional performer and many flights were racked up until it was lost out-of-sight when a faulty timer stuck.

For radio work the McCoy Diesel .049 was coupled with the Super Aerotrol unit. The 30-ounce model was a snap to build and as you have read, easy for anyone to handle. . . . And scale R/C's really tops!

The control line version proved a treat for the boys in the neighborhood who wanted to get away from the usual type of U-control. Here, again, the McCoy Diesel proved easy to start, gave good fuel economy and posed no fuel-proofing problems.

R/C construction: the big 'Cup utilizes straightforward framework. Assemble the sides one atop the other; when dry separate and add the cross pieces along with the stringers. The landing gear is bent and fastened to (*Continued on page* 80)


NOTE: CENTER SECTION COVERED TOP & BOTTOM WITH 1/32" SHEET
1/32" SHEET COVERING
STRUT POSITIONS
3/16" SQ. LEADING EDGE
HOLLOW SOFT BALSA TIPS
3"
1/8" X 1/2" HARD
1/16" SHEET RIBS
TIP CROSS SECTION
1/8" X 3/8" HARD
DIHEDRAL GUSSETS 3/32" PLYWOOD
1/8" X 1/4" HARDWOOD STRUTS
3/32" DIA. WIRE
3/16" X 3/4" TRAILING EDGE
1/32" X 3/16" CAPSTRIPS
1/16" X 1/4"
FRONT VIEW
1/16" DIA. WIRE STRUT HOOKS BIND WITH STRONG THREAD
3/16" DIA. DOWEL
1/16" X 3/16" SIDE STRINGERS
1/16" SHEET TOP & BOTTOM
"B" BATTERIES
FUEL TANK
1/32" DIA. WIRE
WINDING HOOK DETAIL
1/32" DIA. WIRE
ENGINE MOUNTING BOLT
COWL CLIP DETAIL
1/2" SHEET
"AEROTROL" RECEIVER
NOTE: MOUNT RHEOSTAT, JACK & SWITCH TO PLYWOOD BEHIND BATTERIES
1/16" DIA. WIRE
ANTENNA JACK
1/16" SHEET BOTH SIDES
TOP & BOTTOM STRINGERS 1/8" X 1/4"
1/16" X 1/4"
"DMECO" R.C. CONTROL HORN
1/32" I.D. TUBING HINGE
4 PENCELL BATT. BOX
1/8" SHEET
CLOTH HINGES
C.G.
1/16" DIA. WIRE PUSH ROD
McCOY DIESEL
ESCAPEMENT RUBBER WINDING HOOK
1/16" DIA. WIRE
1-1/8" DIA. WHEEL
1/4" SQ. LONGERONS UPRIGHTS & CROSS PIECES. MED. BALSA
LEAVE OPEN
3/32" PLYWOOD
DOOR ON RIGHT SIDE
ESCAPEMENT "DMECO" R.C. BELLCRANK
2-1/2" DIA. WHEELS
PLANS BY: AUBREY KOCHMAN
SCALE IN INCHES
0 1 2 3 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

HOT SHOT *POWER PAC*

for

Quick, Dependable Starts

Complete with Charger Only $6.95 F.O.B. Kenosha Shipping Wt. 5 lbs.

Here's a storage battery built like an automobile power unit — engineered just for model airplane starting. 4" x 6½" x 6½" high. Storage compartment big enough to hold ½ pint gas can, tools and extra props. Handy handle. Hard rubber case. 5 full plates.

HOTTER GLOW OR SPARK . . . Makes starting easier because excess fuel is readily burned out.

TRUE DEPENDABILITY . . . Every time you go out to fly you have a fully charged battery.

BATTERY CHARGER INCLUDED . . . For simple no-cost charging.

LONG LIFE . . . Will last up to 10 years with proper care.

FULLY GUARANTEED

SEE YOUR DEALER! If he can't supply, order direct on five day trial, money-back guarantee. Send $5.00 now, pay balance C.O.D.

GREAT LAKES BATTERY CO.
Dept. 27, Kenosha, Wisconsin

SEND ☐ Hot Shot Power Pacs today to:

NAME.....

ADDRESS.....

McEntee on R/C

(*Continued from page 49*)

has plans available for this transmitter, which uses a dynamotor and wet cell power supply. Meetings held third Friday of each month at Parklawn, 1160 Rockville Pike, Rockville, Md. You can reach Bill at 1115 Chickasaw Dr., Silver Springs, Md.

Short Circuits. Sad to say, errors creep up on us, no matter how carefully articles and diagrams are checked. Sometimes they can be blamed on the printer—others are our own fault. One of the latter concerns the coil L1 in the Mac II; there is a tap shown ("To C4") as it should be, but we should have specified that it is at two turns from the crystal end of the coil. The drawing shows this correctly, of course. Another one on this same rig has been found in the circuit for charging from the power line; the plus lead to the cell should be the one from center tap of transformer, with minus from the frame of the rectifier.

Another "short circuit" has been found in the drawing at lower right on P. 46, April '53 issue; the grid resistor is labelled "3 mmf.," but should be 3 meg. In this same circuit, the LS3 coil form was wound with 20 T. of No. 24 en. wire, close wound and centered on the form.

And sad to relate—we hang our head in shame—on the battery charger hook-up on page 80 of the June issue the *red* terminal should be connected to the positive side of the battery, the black goes to the negative side.

Commercial News. There's a complete list of "AT" drawings concerning R/C that are available from Hobby Helpers, 770 Hunts Point Ave., NYC 59. Group 849: *Thermal Sniffer*, R/C towline glider by Chet Lanzo; Group R101: *Mac's Robot* by Fran McElwee, *Build Your Own Beep Box, Build Your Own 27 mc. Transmitter and Receiver;* Group 553: *Mac II* High Power transmitter for 27¼ mc.; Group 553A: *Liberty Belle*, Half A R/C ship by Dick Schumacher; Group 653: *Magic Maid*, scale-like 55" low-winger, *Mobile TV Truck*, a radio control job with electric motor drive and steering, *Square Sue*, twin float air prop cabin cruiser. There will be more coming—keep a file of them all!

Readers have asked where they may obtain gear trains for various R/C uses. There are several types on the market, sold with or without motor and made by Wilson's of Cleveland, 425 Lakeside Ave., N. W., Cleveland 13, Ohio. Gears are of steel and brass. A beautiful little gear unit with 250-1 reduction is sold for $4.95 by Thompson Model Supplies (Box 372, Guthrie, Okla.). It weighs ¼ oz. and measures only 1¼" x 1" x ⅜", exclusive of shafts. A really high-class surplus gear case with 800-1 reduction is sold for $1.95 by ESSCO (58 Walker St., NYC 13.). Comes in sealed case, but you can take out the works and save weight. About 2¼" dia. and 1" thick, less shafts; weighs 8 oz. with brass case.

Those plastic cases for 4 pen cells that

(*Continued on page 56*)

NOW... Complete READY TO OPERATE RADIO CONTROL

27mc. Crystal Control

"SUPER AEROTROL"

NO OPERATORS LICENSE REQUIRED!

ONLY $49.95

Including: TRANSMITTER; ANTENNA; RECEIVER; ESCAPEMENT; & O-3 MILLIAMMETER

Yes, you can now save over $7.00 on this combination deal. Nothing else to buy except batteries . . .

"Super Aerotrol" 27mc. Crystal Controlled TRANSMITTER

—Operate and Maintain Yourself!

- **Portable — Self contained — No separate antenna — No external Batteries! 3.5 lbs.**

ASSEMBLED UNIT $27.95 With tube — less batteries

IN KIT FORM:

Kit includes all necessary parts (except tube and batteries): Precision Ground Crystal; Painted Metal Cabinet; Finished Sectional Antenna; stamped and formed chassis with all holes punched; all necessary components, resistors, condensors, coils and chokes; color coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included.

$19.95

"Super Aerotrol" Dust Core Tuned RECEIVER

Super-regenerator circuit, 100% dependable.

- **NEW "locked-channel" dust-core tuning.**
- **Light in Weight, 2¾ oz. less batteries.**

ASSEMBLED UNIT With tube-less batteries **$21.95**

IN KIT FORM: less tube **$13.95**

Kit includes: Finished, tested sensitive relay; finished dust-core tuner; drilled bakelite base with condensors and eyelets attached; all electrical components, condensors, resistors, coils, chokes and potentiometer; all necessary contacts, and color-coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included.

"Super Aerotrol" ESCAPEMENT

Assembled only **$3.95**

Entirely new and different! Rugged yet compact. Single hole mount. Draws 2-5 times less current. Operated by rubber power, it will deliver at least twice the control operating force of other escapements without "skipping." Completely self-neutralizing, it returns the control to neutral after the signal stops.

MILLIAMMETERS

0-3 Milliammeter $3.50

0-50 Milliammeter 2.75

Low in cost, manufactured specifically for use with Super Aerotrol. O-3 Milliameter for use with Super Aerotrol Receiver. O-50 Milliameter for use with Transmitter.

XFG-1 RECEIVER TUBE.....$3.50

3A5 TRANSMITTER TUBE 2.25

"Super Aerotrol" INSTRUCTION MANUAL

This is the best book on Radio Control. Included at no charge with Transmitter. Sold separately, only **$1.00**

D-E AEROTROL (52mc.) Kit...$22.95

Includes Transmitter, Receiver, Escapement (less batteries and tubes).

Prices and Specifications subject to change.

SOLD THRU
BERKELEY
DEALERS & DISTRIBUTORS

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. AT., West Hempstead, N. Y. Please include 25¢ packing & postage.

RADIO CONTROL FANS! DON'T MISS THE BOAT!

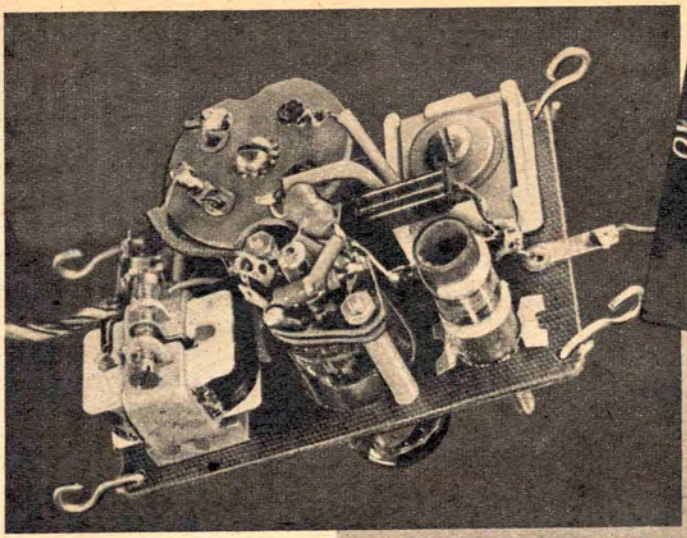
Sterling boat kits are especially engineered and designed for radio control!

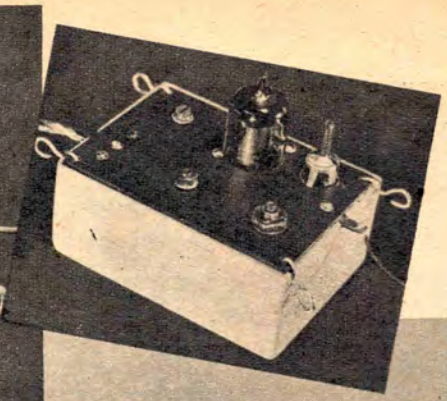
Complete installation shown in detail on easy, step-by-step plans!

See these spectacular models in our ad on page 73.

Sterling models

1530-34 N. Hancock St.
Philadelphia 22, Pa.





By HOWARD McENTEE

Simple / Single Hard Tuber

Heard hard-tube hard-luck stories? Not with this 'n!

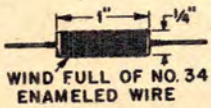
■ R/C flyers, especially those not too well versed in the mysteries of radio, are understandably hesitant in tackling any type of receiver other than the ultra-simple gas-tube style. Gas tubers *are* the simplest—any other sort of receiver requires added parts, new and unfamiliar components, possibly heavier current drain on both A and B batteries. An added liability is the trickiness of some types of non-gas tube receivers. Some of them have to be adjusted by trimming antenna length, others will only work with certain makes of tubes, and so on.

However, it seemed to us that the single hard tube receiver has real merit, if some of the known shortcomings could be licked, so we set about to try it.

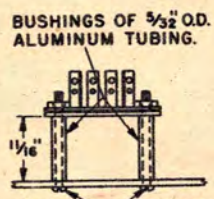
The receiver here, as well as most others of this same general circuit layout, is based upon the English "Bolton" circuit, which itself is a simplification of the Good Brothers receiver, one that has been in active use since around 1937. We had a note and circuit on this sort of receiver in the R/C Column (October 1952 Air Trails); a lot of interest was shown in the arrangement, but some of the less experienced builders ran up against snags they couldn't handle—and with *them*, at least, single hard tubers got another black eye.

Through constant experiment and simplification we have come to the circuit shown herewith; by proper choice of components it was found possible to eliminate the coil tap, antenna and tuning condensers, and several other superfluous parts. Yet despite this simplification, the results are still fine. As with all single hard tube sets, a "quench transformer" is required. We chose the widely distributed National OSR for this (it may be had at most large "ham" supply stores), but trials with several other makes of quench coils show that all may be accommodated. This is in marked contrast to most other hard tube receivers, which require circuit component changes, if the exact quench coil used by the original builder is not to be had.

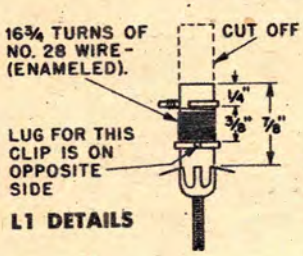
The versatility (*Continued on page* 74)



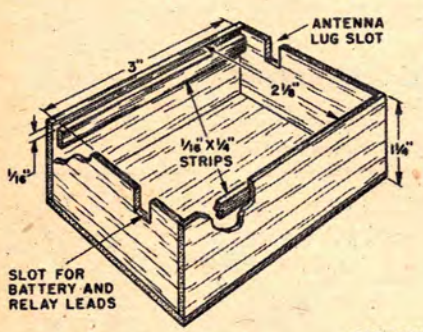
R. F. CHOKE



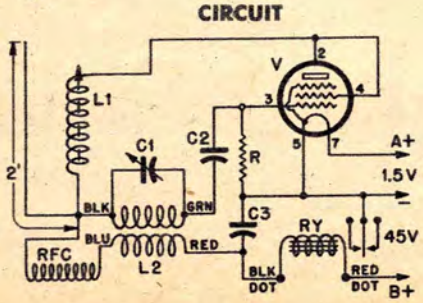
SOCKET MOUNTING



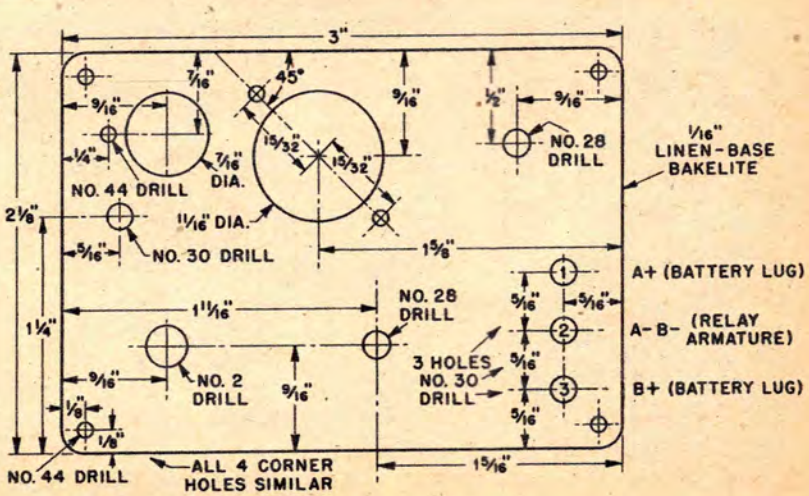
L1 DETAILS



CIRCUIT



CHASSIS LAYOUT



In addition to its Premium OHLSSON & RICE Fuels . . .

Cheminol now introduces a powerful new fuel at a sensationally lower price!

Cheminized! XL-AA and XL-2

- *Cheminized Ohlsson & Rice premium fuel still is identified by its COLOR . . .*
- *Cheminized XL O&R Fuel can be identified by its ODOR . . .*
- *BOTH are identified with highest performance in model flying!*

69¢ Pint
(available only in pints)

Also available
XL-1
XL-3
XL-4

Now you can purchase fine quality fuel, guaranteed by the makers of Ohlsson & Rice premium fuel—at a saving of nearly 20 percent!

This means that thousands of new modelers can enter the sport...thousands more can enjoy extra hours of flying time without increasing their cost a penny!

You, too, will want to try this exciting new fuel—produced in the world's largest model fuel laboratories. Like Ohlsson & Rice premium fuels, *Cheminized* XL Fuel will be promptly available to dealers from Cheminol plants on both East and West coasts. Get a can at your model dealer's today, and prove to yourself that—at just 69¢ a pint—*Cheminized* XL Fuel is

X L ent for YOU!

Cheminol Corporation

Ohlsson & Rice
Products
LOS ANGELES, CALIF. WILMINGTON, DELA.

Sole Distributors
in Canada: Canadian Hobbycraft
Toronto, Canada

For some real fun make it a glider—Pop'll forget his cares while test flying a soaring model.

(*Continued from page* 53)

are so handy—but not often available in hobby stores—may be purchased direct from maker, Model Plastic Products (1695 Cordova St., Los Angeles, Cal.). A new type has individual spring contacts for each end of each cell, and retails for 85c; the older styles intended for four cells in series-parallel costs 75c.

New catalog out from Radiomodels (Box 36, Balto. 6, Md.) includes description of Midget 1 radio kit, miscellaneous small parts, R/C books, etc. They also feature a "Supply Source Directory" telling where to obtain R/C parts at low cost; the Directory, plus package of useful R/C parts, sells for $1.00.

—HOWARD MCENTEE

The Brave Baroness

(*Continued from page* 21)

applause from the watching thousands. But then there came an afternoon when it seemed as though she might have tempted Fate once too often.

A long-distance contest was in progress, and she was circling the big aerodrome with four other men competitors in the air at the same time—Bleriot, Latham, Cattaneo, and Lindpaintner. Suddenly, as her Voisin was about to round one of the pylons, not far from the main enclosure the machine was seen to wobble suddenly and tilt sideways, then plunge nose first to earth from a height of 200 feet.

There was a gasp of horror as the baroness was seen lying motionless amid the wreckage. Two medical men in attendance at the meet were rushed out in a car. But after a first hurried examination they shook their heads. Her injuries were so serious it seemed there was little chance of recovery. Both her legs and one arm had been broken, with serious head injuries and suspected internal hurts.

(*Continued on page* 58)

WAIT TILL YOU SEE THIS ONE!

BY ENTERPRISE

F-51 MUSTANG

This great new miniature scale controline kit probably will be at your dealers by the time you read this "ad". We can only show the outline now. But really fellows—THIS KIT HAS EVERYTHING. Completely prefabricated, MORE PLASTIC ACCESSORIES than ever before found in any gas model including SPINNER, PILOT, CANOPY, NOSE, AND MORE.

17½" wingspan for engines from .039 to .099

A REAL PREFABRICATED FLYING SCALE CONTROLINE MODEL FOR THE UNBELIEVABLE PRICE OF only $1.95

ZENITH
18¾" span, Controline .039 to .099 engines **$2.50**

SLICK TRICK
17¾" span, Controline .039 to .099 engines **$1.95**

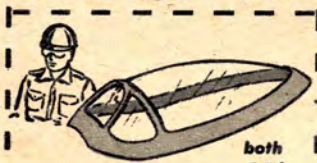
KNOCKOUT
18" span, Controline .045 to .099 engines **$2.50**

BABY ERA
18" span; Controline .045 to .099 engines **$2.50**

BABY ERA BIPE
16" span, Controline .045 to .099 engines **$2.50**

SKY LEADER
18" span, Controline .045 to .099 engines **$2.50**

SHADOW
32" span, Free Flight .030 to .099 engines **$1.95**



both **25¢**

PILOT & CANOPY
For all miniature Controline, Rubber, Sport & Stunt models

CHAMPION
36" span, Free Flight .045 to .099 engines **$2.50**

SUPER KNOCKOUT
24" span, Controline .099 to .199 engines **$3.50**

AUTHENTI-CARVED SOLIDS
Large size exact ¼ scale

F-86 SABRE JET
F-51 MUSTANG
MIG-15 RUSSIAN JET
P-40 WARHAWK
each **$1.00**

AIR RACER
18" span, Controline .065 to .199 engines **$3.39**

TOWLINE TERROR
24" span, Pre Fab. Glider **$1.00**

GIANT SIZE COMBAT ACES SERIES

F-86 SABRE JET
F-9-F PANTHER JET
F-80 SHOOTING STAR
F-51 MUSTANG
F-84 THUNDER JET
MIG-15 RUSSIAN JET
each **$2.50**

TOW-LINER
24" span, glider completely Pre-Fab. **$1.00**

Try your friendly dealer first. If not available, send 25¢ extra for mailing charge.

ENTERPRISE · MODEL AIRCRAFT CO., INC.
234 E. 2nd ST., · Dept. 137 · MINEOLA, N. Y.

NOW · The Famous

HOT ROD

That Made Headlines

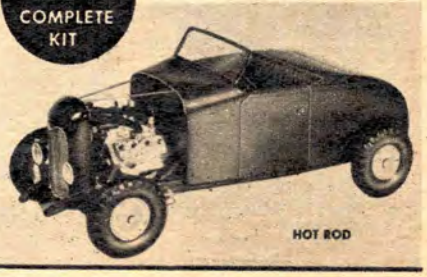
BROKE THRILLING RECORDS

★ Now its scale model, in simplified kit form, produced by ACE, is the "toast" of model builders and hot rod fans everywhere. Authentic, realistic, this "Hottest of Hot Rods." Can even be made with jet propulsion if desired. EASY TO BUILD by the beginner — interesting details for the expert. Parts mostly ready-shaped — complete plans and instructions. Get yours today!

ACE "HOT ROD" KIT No. 20R

AT ALL MODEL AND HOBBY SHOPS

$1 COMPLETE KIT

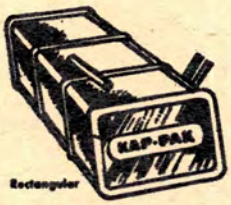


Give Dad an engine of his own—then he can go in for boats, planes, and cars.

KAP-PAK

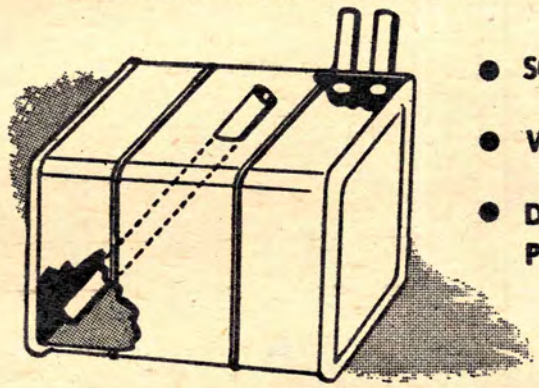
for AIRPLANE and AUTOMOBILE

MODEL Accessories



KAP-PAK GAS MODEL TANKS ARE

LEAKPROOF



- SOLDERED INSIDE AND OUT
- WILL NOT DISCOLOR FUEL
- DIE STAMPED NON-CORROSIVE PLATED STEEL

39¢ to 69¢

14 Sizes of WEDGE and RECTANGULAR TANKS

Lower Prices

Insist on **KAP-PAK** *Model Accessories*

A & M SUPER PRODUCTS

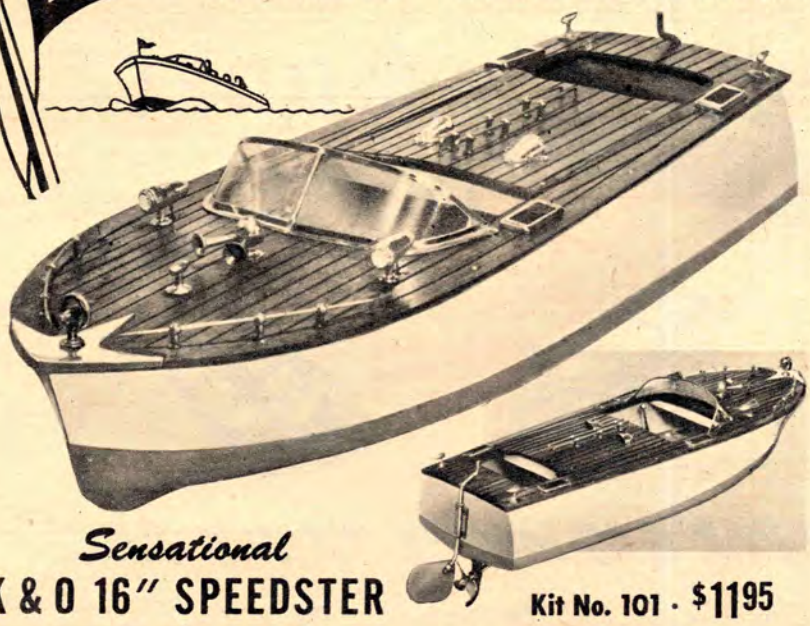
2208 N. MILWAUKEE AVENUE • CHICAGO 47, ILLINOIS

A ready-to-fly model and Father's Day: the perfect gift combination.

K&O

FINEST IN MODEL BOATS

KITS • MOTORS • DRIVE UNITS • ACCESSORIES



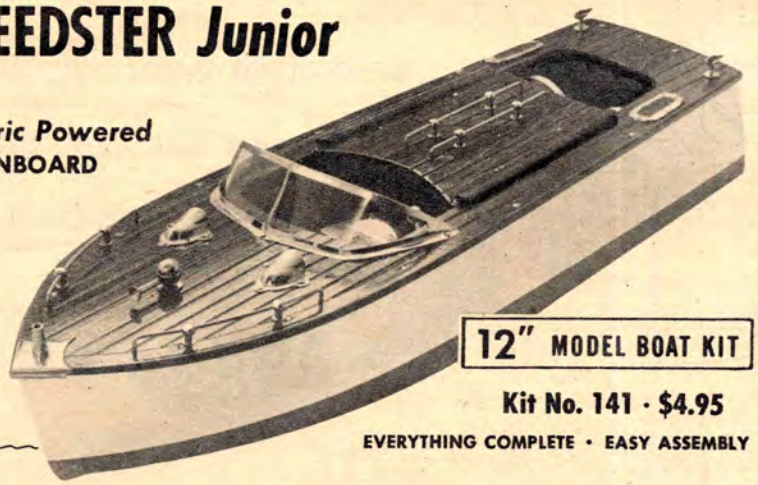
Sensational

K & O 16″ SPEEDSTER **Kit No. 101 · $11.95**

A BEAUTY! Easy to assemble—easy to operate. Perfectly detailed and complete in every respect. Hull is equipped with large size Electric Drive Unit, two Electric Headlights and many other beautiful nickel-plated fittings. Finish-carved hull and deck. Four flashlight batteries power the electric inboard motor. Rides the water like its 30-foot prototype.

SPEEDSTER *Junior*

Electric Powered
INBOARD



12″ MODEL BOAT KIT

Kit No. 141 · $4.95

EVERYTHING COMPLETE • EASY ASSEMBLY

It's New! 12″ of authentic, detailed, sleek, powerful beauty in K&O kit form. Everything the model boat builder could ask, attractively packed in blue & white carton. $4.95 buys the works! Parts complete from battery powered drive unit down to brads for hardware mounting. Hull, deck ready shaped—just stain and paint. Hardware heavy nickel-plate. A cinch to assemble. Throw the switch—watch it perform!

OTHER K&O PRODUCTS

include the 16″ Speedster Kit 11.95—Gas Engine Screw Sets, 5 sizes 3.95 to 7.95—Electric Drive Units 1.95 to 4.95—Electric Inboard and Outboard Motors, all sizes 2.00 to 4.95—and a complete line of nickel-plated Model Boat Fittings.

K & O ELECTRIC MOTORS

For model boats, race cars, etc., guaranteed unequalled in power output, quality, compactness, low price. Heavily nickel-plated and gray finish.

In the royal blue K & O Display Box in your local dealer's store, you'll find the finest nickel-plated fittings for any boat kit sold. Look and ask for K & O...

AT YOUR HOBBY SHOP, TOY OR DEPT. STORE

K&O Models INC.

13982 STROUD ST. • VAN NUYS, CALIF.

(*Continued from page 56*)

After they had carried her gently to the little whitewashed hospital on the aerodrome, she recovered consciousness for a few minutes, and when asked if she knew what had caused the crash she whispered that one of the other four planes had suddenly cut across just in front of her Voisin as she was about to round the pylon, and that it was the heavy back-wash of air from this machine which had made her to lose control.

She was unable to distinguish the plane, and although two of the contestants who had been watching from the ground claimed they saw Lindpaintner swerve his Sommer as described, this pilot was able to clear himself at the official inquiry. It was never ascertained exactly what happened.

Removed to the private nursing home in Rheims of Dr. Roussel, one of the two medical men who had attended her on the aerodrome, the baroness finally recovered. Loving care and her amazing vitality performed a miracle. It was a matter of months, however, before she was convalescent. Directly she felt strong enough to do so, and despite the pleadings of her friends, she drove again to the big aerodrome at Chalons where she had first flown, and insisted on arranging to have another Voisin placed at her disposal. And before long, flying in this machine with every bit as much daring and skill as before the near-fatal crash, she not only competed with distinction in several further air meets, but also succeeded in winning a valuable prize offered for women flyers only, the Femina Cup, during the course of which she remained in the air for just over four hours.

Her spirit remained undimmed. As soon as she was well enough, she took to the air again with all her old zest, winning several more prizes.

World War One, when it came, found her begging to be allowed to fly with the French air force as a military pilot. Regulations, of course, were against this, and she had to rest content with piloting high officers between front and rear lines via automobile.

As soon as hostilities were over, she set about realizing yet another of her air ambitions. This was to become a test-pilot of the many new aeroplanes French builders were now beginning to produce, embodying in their designs all the technical experience gained in the war years. No woman had, so far, qualified professionally for any such work, and the baroness was eager to show that in this field, too, women could work successfully side by side with men.

It was with this new plan very much in mind that one morning found her motoring out to the aerodrome at Le Crotoy. Here a postwar plane embodying several new features was undergoing test flights, and just before leaving the ground its pilot asked the baroness if she would like to accompany him in the passenger's seat. There was no hesitation about her reply. They took off together, and the plane seemed to perform well.

Just as the pilot was preparing to land, those watching from the ground saw the machine side-slip and then go into a spin. From this the pilot evidently failed to recover, and the plane crashed into a field. When mechanics reached the scene they found the baroness lying dead amid the wreckage, while the pilot was so badly injured that he died before he could be got to hospital.

So it was that Fate, which she had defied so gallantly, and so often, had its grim way in the end.

Let him dress up his den with some of those easily-assembled scale model vehicle kits.

Swan Song

(*Continued from page 37*)

wing may not be able to lift the plane at all. In the *Swan Song* a beam loading of 4" to the pound has been used which coupled with the trim angles and flat bottom result in a very clean, swift take-off. The model rises on the step within a few feet, planes with the afterbody right out of the water and is very shortly airborne.

Compared to sponsons or sea wings, wingtip floats have much less air drag and greater water stability, but owing to their location and means of attachment they are very vulnerable to damage.

This disdvantage has been overcome by mounting the wing directly on the hull to keep the float struts short, and designing these to be rugged. In addition the socket in the wing for the strut end is made sturdily. The floats themselves, being of sheet balsa construction, are strong. A 300% reserve buoyancy has been designed into them for water stability.

The wing employs the N.A.C.A. 4612 section which the author has used on previous free flight designs with great success. It has a gentle stall, high lift and low drag as well as sufficient depth for sturdy construction at high aspect ratios. The wing has 325 square inches of wing area, a maximum chord of 6 inches and has an aspect ratio of 10. Although the design may seem short coupled, the tail moment arm is 3½ times the maximum wing chord. Moderate but ample polyhedral is employed and the model has shown no sign of lateral instability in flight.

The tail section is the Clark Y10, the area is 40% of the wing and the aspect ratio is six to provide an efficient tailplane. It is mounted high on the divided rudder to be well clear of the water on both take-off and landing.

Rudder area is 10% of wing. This high figure is necessitated by the large lateral areas forward of the centre of gravity. Good balance between dihedral and rudder area exists; the model is very stable directionally. There have been no fatal spiral "Swan" dives.

The power unit is incorporated in the streamlined nacelle mounted on and integral with the wing. In this position it is away from the water and the prop is out of harm's way, effecting quite a saving in broken props. The cowling and submerged timer give the aircraft a clean, trim appearance.

Complete building instructions are available on the full-size plans.

Swan-Song .149 Cub

Design Parameters

Beam Loading	4" per pound
Wing Loading	7.5 ozs. per sq. ft.
Power Loading	114 ozs. per cu. inch displacement
Span Loading	3.6 ozs. per ft. span
Gross weight	17 ozs.

Wing

Area 325 Sq. inches Aspect Ratio 10
Root Chord 6"
Tip Chord 4.5"
Span 57"
Average Chord 5.7"
Dihedral—Tip 4" Break 1.25"
Section N.A.C.A. 4612 at 2 deg. angle of attack

Tailplane

Area 130 sq. inches (40% wing) Aspect Ratio 6
Root Chord 5.3"
Tip Chord 4"
Span 28"
Section Clark Y10 at 0 deg.

Rudder

Area 325 Sq. inches (10%)
Section N.A.C.A. 0012

Weights

Motor Unit complete	3.75 oz.
Wing	4.00 oz.
Tail & Upper Rudder	1.50 oz.
Hull & Lower Rudder	4.75 oz.
Wing Floats	.75 oz.
Motor Nacelle & Cowl	2.25 oz.
Total	17.00 oz.

SENSATIONAL NEW

the WILDCAT
37" SPAN

$4.45

FLAPS

20 oz.

330" AREA

ENGINE SIZES .19 - .35 CU. IN. DISP.

Every effort has been made to develop the utmost in simplicity of construction, lightness of weight and greatness of performance in this **NEW WILDCAT.** Designed around the famous HJ03515 air foil plus the best basic stunt features possible, it has new low drag wing tips, profile drag cut to a minimum, low wing loading (.06 oz. per sq. in.). The ship you've always wanted.

Designed by
HI JOHNSON

the BOBCAT
37" SPAN

$3.95

19 oz.

ENGINE SIZES .19 - .35 CU. IN. DISP.

324" AREA

Like the **WILDCAT** the **BOBCAT** is a great airplane carefully designed to give the utmost in ease of control. An excellent ship for stunt training, stable enough for the beginner, yet will fly the full stunt pattern with ease. The **BOBCAT** embodies many pleasing features such as simple **KWIK-LOK** construction, diecut parts by the new **KENHI PROCESS,** notched leading and trailing edges, complete hardware, AAA grade wood, diecut windshield, formed gear, **FULL SIZED** plans and many other special features you just can't pass by. You'll fly a **BOBCAT** eventually, why not now.

KENHI MODEL PRODUCTS, BURBANK, CALIF.

KENHI

Remember—an Air Trails subscription makes a perfect Father's Day gift.

DMECO MODELS

"AMERICA'S FINEST"

JUST FOR YOU!..

You are invited TO ENJOY YOURSELF ASSEMBLING THESE OUTSTANDING KITS—TO HAVE THE THRILL OF FLYING THESE SUPERIOR DESIGNS AND TO KNOW THAT YOU ARE USING THE BEST! CHOOSE YOURS TODAY!

1/2A ENGINES

1.95

"Infant WAGON"

The ready to assemble ALL BALSA stunt model for all ½A engines. It has been accepted as one of the most efficient, rugged and maneuverable models in its class by those who should know!

.04-.09 ENGINES

1.95

"All American Jr."

The number 1 model in the All American Training Team. Features simplicity of construction, ease of learning and long lasting ruggedness, all essential for basic training.

1/2A

LIVE WIRE "CLIPPER"

FOR PAA & FREE FLIGHT EVENTS...

Beginners in free-flight or experts looking for an easy to handle design will find this realistic looking model ideal for them. Use it for PAA load and regular free flight events. 2.95

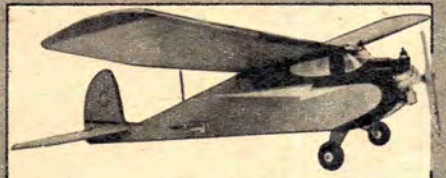
.08-.15 ENGINES

"LIVE WIRE" R/C TRAINER

This is the widely accepted basic-trainer for radio controlled flight. Having been developed for R/C flight primarily it has all of the features which can make your every flight successful, including controlled climb, exceptional stability, excellent maneuverability and extreme ruggedness. The construction is simple and straight forward while the model remains easy to fly!

An exclusive feature is the removable R/C unit that allows easy bench checks of all R/C equipment, use of the same unit in several models and alterations or changes in the equipment with the least trouble. Suitable for ALL makes of radios. Copied perhaps, but certainly never equalled!

6.95



LIVE WIRE "KITTEN" 1/2A ENGINES

FOR R/C SPORT FLYING....

Developed for use with the new compact light weight R/C units the "Kitten" takes every advantage of this fine equipment. The "Kitten" is one model that can be flown in restricted areas, a football field is large enough! The kit is unusually complete and includes special R/C hardware, dural gear and wheels. Its outstanding design gives the ruggedness and maneuverability for all types of flying, assemble it quickly and enjoy many fine flights! 3.95

CHOOSE YOUR KIT THE WAY THE EXPERTS DO!

✓Check THESE POINTS!

- ✓ 1. Correct design, tried and proven!
- ✓ 2. GIANT full size plans with details!
- ✓ 3. World's finest hand picked materials!
- ✓ 4. Precision pre-fabrication by experts!
- ✓ 5. Ultra modern dural gears!
- ✓ 6. Complete deluxe hardware!
- ✓ 7. Unconditionally guaranteed quality!

WITH THE EXPERTS "DMECO KITS" ARE TOPS!

PRODUCTS OF
THE DE BOLT MODEL ENGNR. CO.
WILLIAMSVILLE, N.Y.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

15 Fifteen Famous Fighters 15

SOLID SCALE MODEL KITS

Every little detail visible in the actual airplane, every single item that can be reproduced is given to you.

Jam-packed with metal castings (47 in the P-38 Lightning), these kits are the choice of the best model builders everywhere. See them at your dealers — and, although there is no real comparison, *compare them* with any other kit available.

F9F Panther $2.75

JET MODELS

F-86 Sabrejet	$2.75	F-84 Thunderjet	$2.75
F-80 Shooting Star	2.75	MIG-15	2.75

FW-190 Focke Wulf	$2.75	P-51 Mustang	$2.75	P-47 Thunderbolt	$2.95
P-40 Warhawk	2.75	F6F Hellcat	2.75	P-38 Lightning	3.50
F4U Corsair	2.75	F8F Bearcat	2.75	British Spitfire	2.75

ME-109 Messerschmitt 2.75

Ask your dealer for "Dyna-Mo." If he cannot supply you write us direct, enclosing check or money order plus 25¢ for packing and postage—no C. O. D.'s.

DYNA-MODEL PRODUCTS COMPANY
76 SOUTH STREET, OYSTER BAY, NEW YORK

Western Roundup

F/F Class Idea: A/2, FAI, and Unlimited!

■ Subject: On division of classes for free flight gas, says Ed Slobod—now get this, it is worth thinking about: "Let's have three classes, one for A/2 models, one for FAI gas and one to be unlimited." This really sounds like it! Everyone who has his pet model will have an event for it, the FAI type of model will certainly be given every opportunity to be developed, and we should do this. There will be enough events for every contest. We have cut one, but we still have a division of sizes.

Subject: the present practice of the continued outlawing of fuse dethermalizers in some localities which has left many a model builder in doubt as to whether or not he should fly after traveling a long distance to a contest—some contests are held in out of the way places so that the guys can use fuses. Andy Faykin's suggestion is that we outlaw fuses at all contests. The practicability of this idea is yet to be determined for various reasons. As a whole, it seems to be good, for it will allow a guy to start churning those gears for a simple fool-proof method. Dry ice is one, but we know of at least one manufacturer who is working on a clock work job which will weigh less than a half ounce and will be cheap. The guys would be using the same method in all contests. On the other side, fuses are simple and easy and very cheap.

Inglewood Flightmasters going all out for a really huge A/2 flying scale contest

Dad'll prove hez a whiz on lines—get him started in control line!

Ex-AF'er Al St. Clair and his 9 ft., 8 in. span Thunderbird-powered "Neptune" free flight. Fuselage is 6 ft., total area is 1875 square in.

this year. Leslie Puncher is the man to contact at 2317 Border Avenue in Torrance. The existing AMA rules will be used. Flying will be from 8 to 1:00 p.m. at Sepulveda Flood Control Basin Aug. 23.

Comments both pro and con are sure about the proposed 1954 rules for FAI contest flying. One rule most of the guys agree on is the limiting of the Nordic towline to 50 meters.

The three-minute, five-flight proposal, according to most, is strictly for the birds. They seem to think that there will be plenty of models in both the Wakefield and gas which will be capable of this three-minute limit with every flight. If the motor run for gas were lowered to fifteen seconds, this would still not make any difference with the many hot engines that the manufacturers are bringing out. Ed Slobod, who has been flying an FAI gas job with a Cub .14 up front, has made more flights of more than 3 minutes than under.

—DICK EVERETT

And you can depend on this powerful four-battery flashlight for hundreds of handy uses in camp, farm, home, travel. Only **JUSTRITE** combines 6-volt power spot-beam, exclusive adjustable head, handy square shape.

COMPACT —small as your hand

Most light for the money! $2.95 (less batt.)

JUSTRITE Red Four-Battery Warning Flasher prevents road accidents. Visible half-a-mile. Converts to steady, white light.

Rugged, dependable, rustproof. Only $4.95 (less batt.)

At hardware, sporting goods, department, auto accessory stores—everywhere.

JUSTRITE MANUFACTURING CO.
2061 N. Southport Ave. • Chicago 14, Ill.

FREE!

...Your Copy of SCIENCE IS IN THE AIR!

This big, unusual book is yours at no charge when you enter your subscription to AIR TRAILS Magazine. Think of it—160 pages of fascinating, little-known facts of aero science told to you with literally hundreds of pictures and diagrams. It explains to you important details of radar, aviation, meteorology, atomic energy, jet engines—and scores of other subjects.

Although originally priced at 25c, *SCIENCE IS IN THE AIR* is *not* for sale on the newsstands now. This special offer may be the only chance you have of getting a copy. This valuable book is yours free simply by filling out and mailing the form below for a year's subscription to AIR TRAILS. You get this book *and* AIR TRAILS *both* for the price of just the Magazine—only $3.50.

You already know the wealth of practical, down-to-earth material that AIR TRAILS brings you month after month. The coming issues of AIR TRAILS show you models of outstanding military planes . . . give you the lowdown on free flight gas models . . . show you details of new motors, plans and drawings of all types.

To get your copy of *SCIENCE IS IN THE AIR* plus 12 issues of AIR TRAILS for the price of the *Magazine* alone—fill out and mail this form today.

Offer Good Only in U.S. & Possessions While Limited Quantity of SIITA Lasts

AIR TRAILS, 304 East 45th St., New York 17, N. Y.

Yes, send me 12 big issues of AIR TRAILS for only $3.50—20% under the single copy price of $4.20. I enclose check, cash, or money order.
Include my free copy of SCIENCE IS IN THE AIR.

Name.....

Address.....

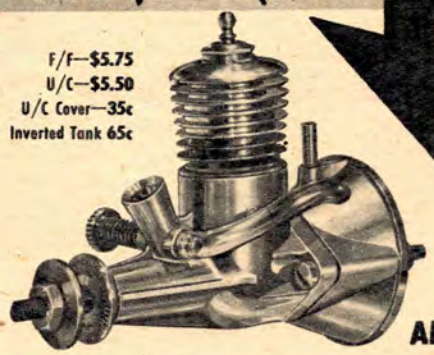
City..... Zone..... State.....

AT-7-53

Flash!

The NEW 1953 Atwood .049 WINS BOTH ½A EVENTS

F/F—$5.75
U/C—$5.50
U/C Cover—35c
Inverted Tank 65c



Plus Other Places

AMERICAN LEGION CONTEST
Held April 7th at
SANTA ANA, CALIFORNIA
Naval Air Station
(Site of the National Indoor Events)

And Then WINS

1st—1/2A JR. PAA EVENT
Don Puskerich
2nd & 3rd—SR. PAA EVENT
Verne Pitt—Dick Everett
3rd, 6th, 7th, 8th, 9th, 10th in 1/2A FF OPEN EVENT
BAKERSFIED ANNUAL MODEL CONTEST—Bakersfield, Calif. April 12th

Yes, modelers, the new Atwood .049 engines really "cleaned up" against all competition. This was the first big event of the season. It was a definite preview of things to come. Here is a partial list of ATWOOD-POWERED winners!

1st—1/2A OPEN SWEEPSTAKES
Toshi Matsuda—Time: 15' 29.2"
1st—1/2A JUNIOR EVENT
Wally Richards—Time: 16' 21"
4th—1/2A OPEN
W. S. Casselberry

No Wonder

—more and more top flight model builders who demand only the best engine money can buy are switching to Atwoods. They have tried them all.

Join the "Big Switch"

—to this more powerful 1/2 A engine that's really hot and more adaptable. An engine with new, different, improved timing, larger crankshaft and by-pass area.

Watch for the new Atwood .15 International—same design as our .049. And don't forget our .051—all based on 20 years experience.

ATWOOD MOTORS
3716 Park Place, Montrose, Calif.

R/C Sports Car

(*Continued from page* 50)

many small chrome frills to duplicate. A small foreign car seemed the logical solution.

Bill Campbell graciously offered the use of his newly-delivered German-built Porsche along with factory three-views. The size was just right, the shape perfect for our needs, and the lack of a radiator grill and excessive chrome trim made it simple to duplicate.

By the way of background, a few facts about the Porsche will help when you are asked about it. The Porsche is a rear engine drive German car designed by the late Dr. Ferdinand Porsche. Dr. Porsche was world famous for his Auto Union racing cars and more recently for his development of the Volkswagon. Actually, the Porsche is a very highly refined Volkswagon. The bodies are individually assembled and completed. The little horizontally opposed OHV four-cylinder engine is air cooled. It is completely assembled by a single craftsman who is responsible for its putting out its rated 55 horsepower. A huge blower is mounted atop the engine to take care of cooling requirements. The rather small grill, above the engine in the rear, is a means of letting air out, not in.

The Porsche's 83-inch wheelbase is rather short even by European standards, but a torsion bar suspension smooths out the roughest roads. It is 152½" long and only 51" high. Curb weight is 1,715 lbs. The price, in case you are interested in owning the full-scale prototype of your R/C model, is approximately $3,500. It is said that if the Porsche were to be hand built in the United States, the price would be tripled. The stock Porsche 1500 will accelerate from 0-60 mph in less than 15 seconds, and is guaranteed to do over 100 mph.

Complete building details are available on the full-size plans.

McENTEE'S SIMPLER HARDTUBE RECEIVER

BASIC COMPONENT PACKAGE:
COIL FORMS & WIRE, TUBE SKT, ALL CONDENSERS, RESISTOR, MICARTA BASE, PLUG & SKT, LUGS, HARDWARE, ETC. → $ 2.95

OSR COIL (NOT IN PKG) . . 1.95
3S4 TUBE 1.50

COMPLETE RECEIVER KITS:
WITH SIGMA 4F RELAY . . 12.95
WITH E.D. POLARIZED . . 13.50

WE CANT ADVERTISE ALL OUR STOCK! TRY US FOR ANY R—C ITEMS DESCRIBED IN A.T. OR OTHER MODEL PUBLICATIONS. WE STOCK TO SUIT DEMAND!

RECEIVER ACCESSORIES:
0-5 MA METER 3.95
CLOSED CIRCUIT JACK . . .45
METER PLUG TO FIT 35
TOGGLE SWITCH 50
25,000 Ω SUB-MIN. POT . . 1.50

REMIT WITH ORDER—WE PAY POSTAGE! WE SHIP C.O.D. TOO

CONTROL RESEARCH
BOX 9 HAMPTON, VIRGINIA
SEND FOR OUR FREE CATALOG

CANADA'S LARGEST AND MOST COMPLETE HOBBY SUPPLIERS

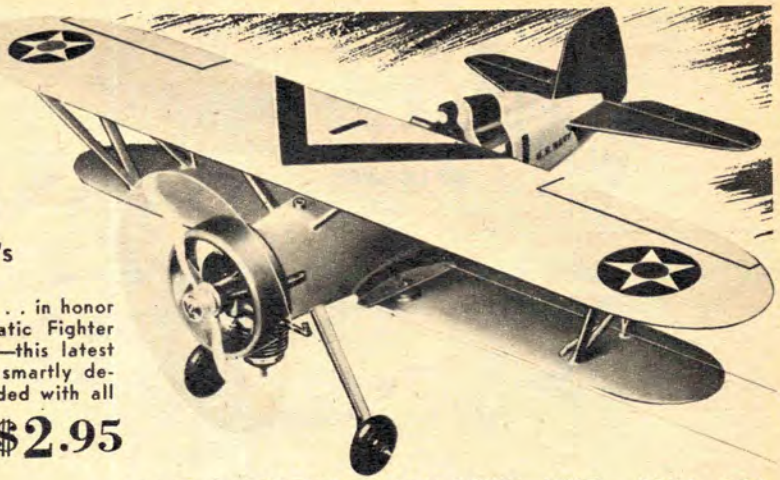
CANADIAN DEALERS Let Us Be Your HOBBY HEADQUARTERS

Write for Catalogue

MODEL CRAFT HOBBIES LTD.
66 WELLINGTON ST., WEST
TORONTO, ONTARIO, CANADA

NEW!

SCIENTIFIC Boeing F4B-4



Realistic Model of the U. S. Navy's Famous Fighter Bi-Plane

It's NEW! It's Exciting! It's our BOEING F4B-4 . . . in honor of the world-renowned "Felix the Cat" Aerobatic Fighter Squadron. Bargain-priced at a low, low $2.95—this latest Scientific control-liner is a real "thriller." It's smartly designed . . . accurately detailed . . . and just loaded with all the quality features you want. The 100% complete kit (super-prefabbed for easy assembly) includes: formed balsa fuselage, wings, tail assembly and struts; metal cowl; rubber wheels; 3-color decals; plastic pilot; etc., etc. **$2.95**

SPAN: 17½" LENGTH: 10½" ENG. DISP: .020 to .074

CURTISS HAWK $2.95
SPAN: 17½" For .020 to .074 Eng. Deluxe U-Control model. 100% complete - with carved balsa fuselage, wings, etc. Easy to assemble.

SPORT RACER $1.50
SPAN: 18" For .020 to .074 Eng. A good U-Control performer at a remarkably low price. Completely prefabbed kit. Easy to assemble.

LITTLE MUSTANG $1.95
SPAN: 18" For .020 to .074 Eng. Features carved balsa fuselage, formed balsa wing, metal parts, etc. U-Control. Prefabricated.

LITTLE SABRE $1.95
SPAN: 18" For .020 to .074 Eng. In honor of the F-86 (Sabre Jet). U-Control model. All parts cut and shaped for easy assembly.

BOEING P-26A $2.95
SPAN: 18" For .020 to .074 Eng. An excellent control-line flyer. Prefabricated kit is complete in every detail . . . all parts finished.

RIVIERA $3.50
For "½ A" Eng., Electric Motors Authentic Chris-Craft replica with a 12" carved balsa hull and brass metal fittings. All parts finished.

SPECIAL $3.50
For "½ A" Eng., Electric Motors Popular Chris-Craft runabout . . . completely prefabbed with carved 12" balsa hull, metal fittings, etc.

Buckeye Jr. Cabin $3.95
For "½ A" Eng., Electric Motors Here's our sleek cabin cruiser. Has a removable balsa cabin, 14" carved balsa hull - 100% complete.

DREAM BOAT $1.95
"½ A" Eng., CO_2, or Elec. Motors Our exclusive aeronautical fin and rudder design. Prefabbed model has 12" carved balsa hull, etc., etc.

BUCKEYE SR. $4.95
LENGTH: 17" For .099 to .29 Eng. Our deluxe speedboat . . . a real thriller. Features precision finished parts . . . super prefabbed.

F-86 SABRE & F-51 MUSTANG -- Both for $1.50
Our sensational 2-in-1 kit. Contains two complete, realistic profile models. Both control-line flyers take .020 to .074 engines . . . both have 18" wingspans. Not one, but two complete models . . . make and fly both . . . for only $1.50.

BUCKEYE JR. $3.95
LENGTH: 14" For .020 to .074 Eng. A "beaut" of a speedboat. Prefabbed model is 100% complete—carved balsa hull, brass fittings.

CO_2 SQUIRT $1.50
"½ A" Eng., CO_2, or Elec. Motors Here's an outstanding performer at a tiny price. Kit comes prefabricated for easy assembly.

SEA HAWK $2.50
"½ A" Eng., CO_2, or Elec. Motors Prefabbed. Has a 12" carved balsa hull, brass metal fittings, etc. Aeronautical fin and rudder design.

AERONCA SEDAN $1.95
SPAN: 22" For .020 to .074 Eng. U-Control, authentic scale model. It's prefabbed . . . with a carved balsa fuselage, formed wing, etc.

CESSNA "170" $1.95
SPAN: 22" For .020 to .074 Eng. Scale control-line model. Prefabbed kit has formed balsa fuselage and wing, all metal parts, etc., etc.

PIPER CUB $1.95
SPAN: 22" For .020 to .074 Eng. A U-Control scale replica of the real plane. Prefabbed model has metal cowl, carved fuselage, etc.

STINSON VOYAGER 1.95
SPAN: 22" For .020 to .074 Eng. Scale model. Carved balsa fuselage, formed wing, aluminum cowl, etc., in the prefabbed kit. U-Control.

½-PINT RACER $2.95
LENGTH: 9" For "½ A" Gas. Eng. Speeds over 40 m.p.h. Features direct wheel drive. Prefabbed kit has formed body, rubber wheels.

LITTLE BIPE $1.50
SPAN: 16" For .020 to .074 Eng. Carved balsa fuselage bi-plane . . . prefabbed for easy assembly. It's control-line. A real value!

LITTLE DEVIL $1.50
SPAN: 18" For .020 to .074 Eng. An economically priced U-Control model. Prefabbed parts include: formed balsa fuselage & wing, etc.

LITTLE ACE $1.95
SPAN: 18" For .049 to .099 Eng. For team racing or sport flying. Kit is 100% complete with formed fuselage & wing, metal cowl, etc.

BEL AIR $2.95
SPAN: 18" For .039 to .099 Eng. A control-line flyer that's loaded with flying thrills. Prefabbed model has all parts finished.

BEECHCRAFT "17" $2.95
SPAN: 16" For .045 to .099 Eng. U-Control, prefabbed model has carved balsa fuselage, formed balsa wings, metal cowl, etc., etc.

See the complete line of Scientific models at your favorite Hobby Shop.

BE SPECIFIC . . . SAY **SCIENTIFIC**

FREE! Scientific's brand-new Spring-Summer catalog is just off the press. It's now available at your dealers or by writing direct.

Buy from your dealer and save 10c mail charge

SCIENTIFIC MODEL AIRPLANE CO., 113 A7 MONROE ST., NEWARK 5, N. J.

Monarch
the ultimate in fine model design
presents . . .

the NEW "SPITTIN' IMAGE"
MUSTANG P51H
FOR ALL HALF "A" ENGINES — FROM .074 UP
WINGSPAN 20 INCHES

Not just a new model — but a NEW TRIUMPH for MONARCH! Here is the very latest MUSTANG — the P51H, in a half "A" control line model of unsurpassing beauty and glamour. Here is exciting realism in form and flight — design at MONARCH'S best — COMPLETE PRE-FABRICATION at its most amazing level! A most distinguished addition to its "SPITTIN' IMAGE" companions — the CURTISS P40F and SPITFIRE. The contents of each are lavish — SPINNERS, huge assembly illustrations — and every luxurious "extra" you would expect. Very modestly priced at $3.95 each. At your dealer, or by mail add 30¢.

WINGSPAN — 20 in.

MONARCH MODEL AIRCRAFT CO. Inc. Brooklyn 33, N. Y.

All Wing Wonder

(Continued from page 33)

to be removable while the rear section and the lower fuselage shell are notched for the wing spars and permanently affixed to the wing frame.

Once the fuselage is fixed in position, complete the control assembly by installing the control outlet plate, leadout wire guide, control rod and control horn. Where necessary, cut away part of fuselage shell to allow for control rod movement. This will eventually be enclosed by the sheet covering and will not affect streamlining.

Install the engine and tank arrangement you contemplate using and make the final adjustments to the cowl, fuselage and firewall where necessary. For best results the fuel tank outlet should be located slightly below the level of the engine fuel intake. Before proceeding with the wing sheeting, add the wire skids on fuselage bottom and the hold-down bolt installation.

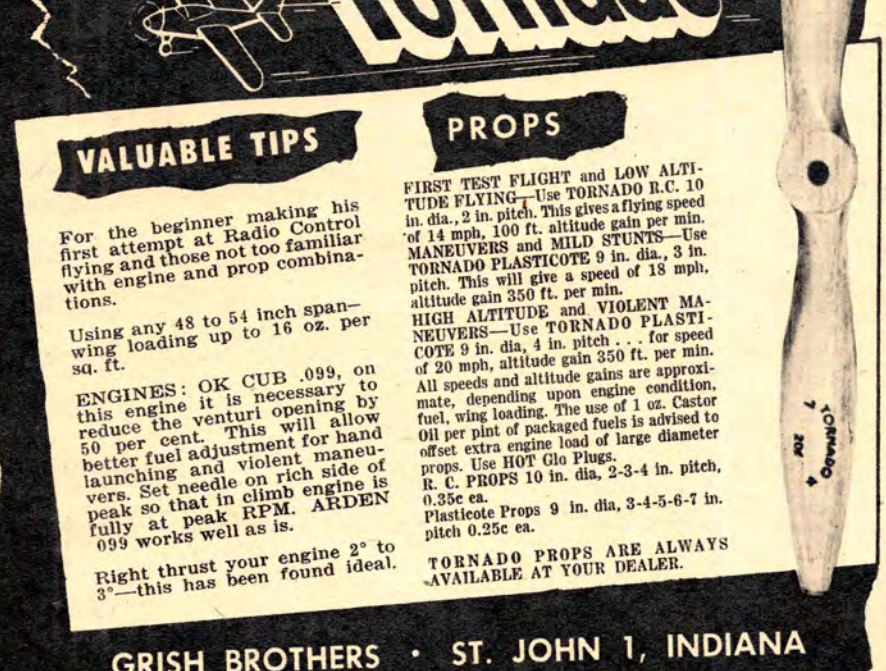
Use smooth sheet balsa that is not overly flexible for the wing sheeting. This will provide an excellent base upon which a high-gloss lightweight finish can be applied. In applying the wing sheeting, note that the sheeting should overlap into the fuselage on that portion which is removable. Throughout the remainder of the structure wing sheeting is butted up against fuselage.

The entire model was given an Aero Gloss finish thinned down, gently rubbed between each coat.

Because of the model's small size, a conventional dolly would preclude a satisfactory take-off. However, a two-wheel drop-off gear with a trailing skid is light enough to facilitate unassisted take-offs. Once the model has made its test flights, it can be hand-launched with a minimum of risk.

Peak performance depends a great deal on the selection of propellers. Excellent flights have been obtained with this model using a 5" diameter 6" pitch propeller, indicating that your ideal prop for this design will be near that size.

Radio Control NOTES from Tornado



VALUABLE TIPS

For the beginner making his first attempt at Radio Control flying and those not too familiar with engine and prop combinations.

Using any 48 to 54 inch span—wing loading up to 16 oz. per sq. ft.

ENGINES: OK CUB .099, on this engine it is necessary to reduce the venturi opening by 50 per cent. This will allow better fuel adjustment for hand launching and violent maneuvers. Set needle on rich side of peak so that in climb engine is fully at peak RPM. ARDEN 099 works well as is.

Right thrust your engine 2° to 3°—this has been found ideal.

PROPS

FIRST TEST FLIGHT and LOW ALTITUDE FLYING—Use TORNADO R.C. 10 in. dia., 2 in. pitch. This gives a flying speed of 14 mph, 100 ft. altitude gain per min.
MANEUVERS and MILD STUNTS—Use TORNADO PLASTICOTE 9 in. dia., 3 in. pitch. This will give a speed of 18 mph, altitude gain 350 ft. per min.
HIGH ALTITUDE and VIOLENT MANEUVERS—Use TORNADO PLASTICOTE 9 in. dia, 4 in. pitch . . . for speed of 20 mph, altitude gain 350 ft. per min.
All speeds and altitude gains are approximate, depending upon engine condition, fuel, wing loading. The use of 1 oz. Castor Oil per pint of packaged fuels is advised to offset extra engine load of large diameter props. Use HOT Glo Plugs.
R. C. PROPS 10 in. dia, 2-3-4 in. pitch, 0.35c ea.
Plasticote Props 9 in. dia, 3-4-5-6-7 in. pitch 0.25c ea.

TORNADO PROPS ARE ALWAYS AVAILABLE AT YOUR DEALER.

GRISH BROTHERS • ST. JOHN 1, INDIANA

HAW-KI
HOBBY SUPPLY CO.
WHOLESALE ONLY

ALL NATIONALLY ADVERTISED MAKES

★ MODEL AIRPLANES
★ RACE CARS
★ RAILROAD EQPT.
★ CRAFTS AND TOYS

WRITE
Today on your business letterhead for current catalog.
PROMPT SPEEDY DELIVERY

HAW-KI HOBBY SUPPLY CO.
DEPT. AT-3 523 WEST 4TH
Davenport, Iowa

Present the Old Boy with a sports car (model—that is!) for Father's Day.

Letters

(Continued from page 4)

Farewell to Gas? . . . The time will come when all aircraft will be powered by jet and rocket engines. What will happen to model aviation?

Allen Vail, Windsor, Conn.

• See article on model "Pressure Jets" in this issue.

Flying Saucer Addict . . . About two months ago I started to experiment with circular wing planes. Today was the first time I ever did the full stunt pattern with a flying saucer. I was all ready to send you plans of it when I got my Air Trails and saw that somebody beat me to it. My ship is powered by an O&R .60, diameter is 31 inches, does about 75-80 on 90-foot lines. Many of my boy friends tried to fly it but couldn't. Before I learned how I broke about four dollars' worth of propellers. I would like to try your design, so please send me plan No. 553A as soon as possible.

Miro Simo, Berwyn, Ill.

The Reception Is Great! . . . Keep up the good coverage of the R/C field, it's great!!

Marshall P. Watson, Columbus, Ohio

Aid to International Team . . . Please pass along the info that last year's Wakefield Team booklet has been expanded for 1953 into an "International Competition Handbook." It'll run 52 pages, have semi-hard cover. Proposed contents: How to Handle Rubber (Lidgard), Cranfield Flying Site (Lidgard), Wakefield Boxes (Lidgard), X-type Props (Bilgri), Prop Sketches (Bilgri), Landing Gear Sketches (Lidgard), Rear Peg Sketches (Lidgard), Quermannn's 1952 Wakefield, Ehling on Nordic Towlines, Ehling, Peter Chinn and Blanchard on FAI Gas; plus 10 more similar features. The 35c for the booklet will help send the U.S. Wakefield and FAI Free Flight Gas team overseas to the International Finals. Ask for it at your hobby shop.

For information on qualifying rounds and semi-finals in your part of the country on West Coast write to Dick Everett, 2133 S. San Antonio St., Pomona, Cal.; in Mid-West, Ed. Lidgard, 814 Bryan, South Bend, Ind.; in East, Bill Fletcher, 8708 Grand Ave., Elmhurst, N. Y. —*Bill Fletcher*

Father's Day—June 21

To a Model Dad from a "Model" Son

This year give Dad more than a gift... give him a HOBBY!

There's nothing like a mutual "project" to get Dad's mind off his worries. And there's nothing like HIGHWAY PIONEERS to start him on a new HOBBY he will enjoy for years! Make a real pal of Dad—show him the fun you can have building HIGHWAY PIONEERS together. He'll appreciate individual models at 69c and 89c, or

New 5-Car Gift Set! containing everything you need—7 colors plastic paint, brush, thinner and cement!

$3.45

ALSO SERIES II, $4.45

Revell HIGHWAY PIONEERS

Quick Construction Kit 5 famous antique autos, 1903 Cadillac, 1910 Model T Ford, 1900 Packard, 1909 Stanley Steamer, 1903 Model A Ford.

Revell INC. 4223 Ocean Park Ave., Venice, Calif.

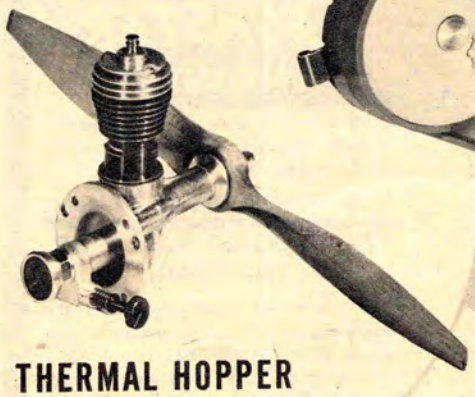
Thimble-Drome Buy-Words for Better Flying!

FUEL!

Thimble-Drome Racing Fuel **$1.10**

Glow Fuel For stunt and sport **90¢**

FREE FLIGHT!



THERMAL HOPPER with Multi-Jet Carburetor. It's terrific! **$6.95**

REEL!

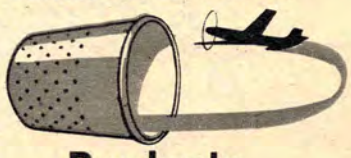
SKYLON— the light reel for ½A with Nylon lines . . . **$1.49**

HANDY REEL both lines AND wires **$2.95**

Space Bug Hop Up Kit

Adds 1000 to 2000 RPM to your Space Bug according to weather. A terrific deal for speed and for flying those large planes. Only **$3.50**

Thimble-Drome



Products

L. M. COX MANUFACTURING CO. INC.

P. O. BOX 476 • SANTA ANA, CALIFORNIA

For some real fun make it a glider—Pop'll forget his cares while test flying a soaring model.

NOW YOU CAN OWN AMERICA'S MOST FAMOUS HELICOPTERS

Official Scale Models Win the Acclaim of Experts Everywhere for Authentic Detail

THE HILLER HORNET
with official insignia in Army olive drab, Navy blue, and Civilian red.

THE PIASECKI
with official insignia in Army olive drab, Navy blue, Marine blue, Air Rescue Service gray, and Piasecki Workhorse silver.

THE SIKORSKY
with official insignia in Army olive drab, Navy blue, Marine blue, Air Rescue Service gray, and Coast Guard yellow.

$2.49 EACH
Sikorsky Air Rescue with Pontoons, $2.98

HELICOPTER GUIDE by "Les" Morris

The only book of its kind! Written by one of America's first and foremost helicopter pilots. Tells you everything you want to know about helicopters. Gives detailed, easy-to-understand instructions and diagrams on how to fly a helicopter. Jam-packed with illustrations and facts. $2.00 per copy. Add 10c for postage and handling.

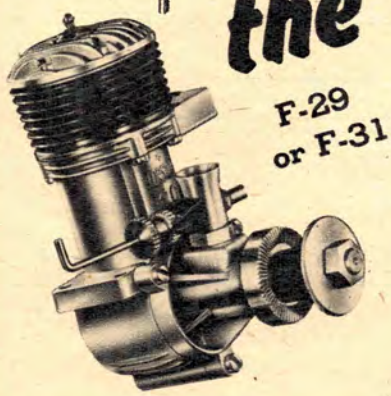
You've been reading about these exciting helicopters for a long time—now you can own exact replicas, detail for detail. So real looking, you think they're about to take off. These models are precision molded of sturdy polystyrene plastic, and are handsomely gift-packaged with a dramatic color illustration, suitable for framing, on the box cover. Each easy-to-assemble kit contains a clear plastic display stand, instruction sheet, and a folder describing the fascinating history of the helicopter. These authentic models are a prize for any collection—get yours today! AVAILABLE AT YOUR DEALER and Fine Stores Everywhere, or write direct to us. Enclose check or M.O. plus 25c for postage and handling—no C.O.D.'s please. Specify model and color desired.

Helicopters for Industry Inc., 111 Cathedral Avenue, Hempstead, N. Y.

LIFE TIME BARGAIN

NEW LOW PRICE, ONLY $11.20

the lid's off!



F-29 or F-31

FORSTER ENGINES

With materials de-controlled and unlimited production now permitted, FORSTER BROTHERS announce a

21% PRICE REDUCTION,

THE BIGGEST VALUE OF THE YEAR!

The same top quality engines, the same high precision workmanship for which FORSTER ENGINES are famous the world over, are now yours at this great saving.

See and compare them at your Hobby Shop.

Write for Catalog

SUPER QUALITY—LOW PRICE—EXTRA VALUE

FORSTER BROTHERS, 82 E. Lanark Ave., LANARK, ILL.

where quality comes first...

Southern Scene

Walker Top Sponsor at Southeasterns; Alex. City Shows 'Em How

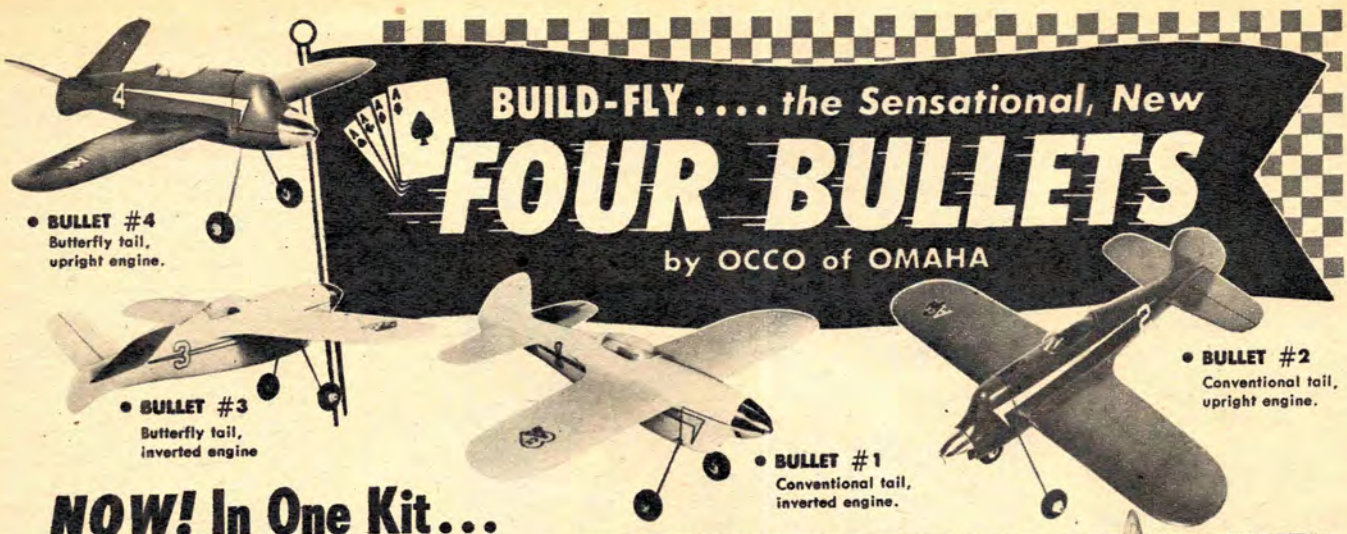
■ "Orchids" to Jim Walker! He's giving 32 first-place $50 U. S. Savings Bonds as top awards in the forthcoming 15th Annual Greater Southeastern Championships June 20-21 to be held in Atlanta. Jim is also putting up a perpetual trophy to go along with the Arthur Godfrey Perpetual and it is likely that Lockheed Aircraft Corporation will do likewise. The Eddie Rickenbacker and the Godfrey permanent trophies will be up for award, along with Jack Besser's Monogram Trophy and the Testor's plaque.

While tossing the bouquets let us hasten to add that Charlie Miller of Duro-Matic Products came through with McCoy .29's for third prizes, and many other friends of model aeronautics contributed the second-place $25 U. S. Savings Bonds. Gene Robinson, officer of M.I.A., contacted Charlie and got the engines.

Yep! All roads lead to Atlanta on June 20-21 for the Southeasterns and Lt. William C. "Dub" Yarbrough gets leave from Naval Air Station in Pensacola to act as Contest Director. Navy "top brass" Admiral Whitney, Chief of Naval Air Basic Training, will award the Godfrey Perpetual, and Jim Walker is expected all the way from Portland, Oregon to get a glimpse of this widely acclaimed meet.

The Southern season opened with the First Annual Lake Martin Classic at Alexander City, Ala., well handled by Louis Brewer. It was like a circus day for this small but progressive Alabama

Give Dad an engine of his own—then he can go in for boats, planes, and cars.



NOW! In One Kit... Choice of 4 DESIGNS

For This Red-Hot, New ½A SPORT and TEAM RACER

You select the design for this speedy, new U-control sport and team racer. Choose from combinations of butterfly or conventional tail, upright or inverted engine design. Smooth, prefabricated parts make it easy to build . . . a cinch to fly expertly. For all ½A engines (.035 to .074). Craft carved wing, fuselage and cowl. Easy-to-follow plans. Only $2.50

OTHER FEATURES — Craft cut tail surfaces and plywood parts. Pre-formed landing gear. Complete set of colorful trimming decals. Moulded canopy and all hardware.

It Will Climb Higher and Glide Longer!

"EL-EN-GONE" FREE FLIGHT

FAVORED FOR ITS BUILT-IN STABILITY

For all ½A engines. Undercambered, low aspect ratio, high lift wing. Sky sail covering material. Pre-formed landing gear and dethermalizer parts. Trimming decals. Geodetic, warp resistant stabilizer.

Only $2.50

210 Sq. Inch Wing Area. Wt. 4½ - 5 oz. COMPLETELY PRE-FABRICATED

SEE YOUR DEALER or write OCCO of Omaha

OCCO of OMAHA
OLSON & CLARK MFG. CO.
6113 Maple, Dept. A, Omaha, Nebr.

town. Thousands jammed every foot of viewing and parking space and they were treated to some of the best performances by the best of the Southern flyers. Backed by the Russell Mills, civic clubs, men of high office in municipal affairs, it proved that any small town in the country can have a "big time" meet if there is a moving spirit like Brewer.

Next on the list was Albany, Ga., where Don Kimsey followed the fine standards set in years past by Walter Neal. The meet was a "honey."

Next stop will be Nashville, Tenn., June 13-14, where Carl V. Miller revives interest with a Triple A in co-operation with Civil Air Patrol; and aided by Jim France. And After the June 20-21 Southeasterns, it will be Birmingham, Ala., on June 28, says Jack Scharpf, Contest Coordinator. July 4th will be celebrated the *real* way with a meet in Charlotte, North Carolina—a state we'd like to have in District 5! Not too far from the Deep South we see dates for meets in Wilmington, Delaware, and Washington, D. C. (District 4) and over in District 6, a Triple A for Lexington, Kentucky.

Frank Huffman, the VP in District 8, is getting out a mighty interesting news letter each month. From him we hear that Louisiana is pressing for enforcement of the rule requiring that flyers *must build their own planes.* AMEN!

Raymond Brantley of Hapeville, Ga., second-place winner in '51 Nationals precision acrobatics, is now in the Air Force. If he has had time to keep up his hobby he'll give somebody fits in Air Force contests this season!

Brown Hill of Alabama writes us about a new club just formed in Birmingham whose chief object is to teach young flyers. Named the "Birmingham Aeromodelers," with Coleman Harris, Pres., Harold Singletary, VP, and Allen Johnson, keeping the minutes and handling the cash. Brown tells us that from 40 to 50 R/C men fly every Sunday. Everywhere Radio Control is on (*Continued on page 78*)

for a fun-filled vacation ride

this "All-American" lightweight

GO wherever you please! See new places. Enjoy new thrills. Every minute in the saddle of this sensational Harley-Davidson 165 is one you'll remember. It's built for action. Loaded with features that mean more pep and punch. And it's economical — you average as high as 80 miles to the gallon. See it at your dealer's today. Bring along a buddy. For illustrated literature and a copy of the exciting ENTHUSIAST Magazine, send 10¢ to Harley-Davidson Motor Company, Dept. AT-5, Milwaukee 1, Wisconsin.

Get the Best BUY AMERICAN

Harley-Davidson WITH Tele-Glide FORK

MODEL 165

A ready-to-fly model and Father's Day: the perfect gift combination.

TOM KELLEHER
St. Paul, Minn.
"...easy to start, steady running."

modelers agree!

HAROLD SELSON
Los Angeles, Calif.
"...the hottest half A in our club."

why the fabulous WEN-MAC .049 ... is the talk of the nation!

and AIR TRAIL'S "Motor of the Month" CONFIRMS THEIR SUCCESSES!*

"...a hefty Half-A; healthy rpm's with little vibration."

"...can be adapted to all types of model planes."

"...total weight is only 1.1 oz. without the fuel tank."

"...complete easy-to-read instructions are supplied in a manual."

Wen-Mac AEROMITE
A year around favorite that is the standard of the world! It's ready-to-fly and U-controlled.** Equipped with the easy starting Wen-Mac .049.
$9.95

Wen-Mac AUTOMITE
1953's spectacular achievement in ready-to-go engine powered race cars. Bridle controlled for track racing. Unconditionally guaranteed! It's tops for action, fun, education, and sport.
$10.95

Wen-Mac "V-73" Glow Plug Engine Fuel
The all-new scientifically compounded miniature engine fuel that assures faster starts and unleashes those last locked-up all-important RPM's from any engine.
Pints 95¢ Half Pints 55¢

Wen-Mac Miniature Engine ACCESSORY KIT
A real handy six item package of accessory items essential for the successful starting operation of half-A engines.
$1.49

WEN-MAC MEANS PLEASURE PLUS FOR ALL AMERICA!

WEN-MAC CORPORATION

357 North Canon Drive
Beverly Hills, California
Phone BR 2-2791

*APRIL 1953 ISSUE **JIM WALKER U-CONTROL (PAT. LIC. 2292416)

CONTEST CALENDAR

List meets here! Advise Air Trails 90 days in advance to do the most good for your meet. If any area restrictions on entries, be sure to state. Address of contact man in same city as site of meet unless otherwise specified. Where info on events is furnished these are abbreviated as follows: indoor rubber powered—IR; outdoor rubber powered—OR; outdoor hand launched gliders—OHLG; indoor glider—IG; towline gliders—TL; free flight gas—FF; control line speed—SP; control line scale—CLSC; control line stunt—ST; team racing—TR; combat—COM; radio control—RC; rise-off-water free flight—ROW; carrier models—CAR; free flight scale—FFSC; non-flying exhibition scale—NFSC; jet speed—J; controline endurance—CLEND; Wakefield—WAK; PAA-Load—PAA.

June 13 and/or 14—International Competition Qualifying meets: Miami, Fla. C. R. Quick, 1896 N. W. 36th St.; Wichita, Kan. W. R. Weaver, 611 Lighner Dr.; Galesburg, Ill. K. W. Freese, 224 Silver St.; Ft. Worth, Tex. J. R. Stewart, 814 Oak, Grand Prairie; Tulsa, Okla. W. H. Kehr, 4940 N. Johnstown; Hampton, Va. G. W. Poythress, 11 Dotson Dr., Cherry Acres, Hampton; Omaha, Nebr. O. L. Olson, Jr. 6113 Maple St.; Saugas Field, Boston, Mass. Ed Dolb/, 25 Exchange St., Rockland. See also Fletcher's letter, P. 65.

June 14—New Bedford, Mass. Exchange Club meet. B. J. Searles, Jr., 146 Prospect St., Providence, R. I.

June 14—Rock Island, Ill. R.I.M.A.C. Air Derby; 25-mi. endurance contest. Larry Dickinson, 1536-42nd St.

June 14—San Dimas, Cal. Hi Tailers hydro meet. Russ Johnson, 344 Duane Ave., San Gabriel.

June 14—Modesto, Cal. Flying Circus Meet.

June 14—Nashville, Tenn. CAP meet; OR; WAK; TL; OHLG; FF; Rubber Scale: RC; SP; J; ST; CLSC; TR. C. V. Miller, 427 Deaderick St.

June 14—Wabash, Ind. Exchange Club meet. ST; RC; FF. N. R. Lavengood, Bx 183.

June 21—Flint, Mich. Exchange meet. R. J. Dear, 228 E. 1st St.

June 20-21—Atlanta, Ga. Southeastern Championships. C. Yarbrough, c/o R. H. Elliott, Box 5078, Atlanta 2.

June 20-21—Los Angeles. 3rd Pacific Coast FF championships. R. E. Montcrieff, 2108 Santa Fe Ave., Torrance.

June 21—Greenfield, Mass. Kiwanis Meet. B. H. Williams, 27 Southampton Rd., Westfield.

June 21—Johnsville, Pa. Phila. Plymouth Dealers' meet.

June 21—Cedar Rapids, Iowa. Pavlis Memorial meet. P. M. Marchal, Jr., 1837-8th Ave., S. W. OHLG; TL; ORU; RC; PAA/2; FFSC 2; FF.

June 21—McKeesport, Pa. Keystone Clippers meet. Ralph De Cecco, 513-13th St.

June 21—Norfolk, Va. Middle Atlantic Championships. A. K. Anderson, 436 Penn. Ave.

June 27-28—Enid, Okla. Plymouth-Exchange meet. R. E. Descans, 528 E. Main, Ada.

June 27-28—Detroit, Mich. Restricted Metropolitan Detroit meet. M. C. Hamburg, 4315 Audubon.

June 28—Janesville, Wisc. Mid-west R/C meet. M. F. Koebernick, 1337 Dewey Ave., Beloit.

June 28—Fresno, Cal. FGMAC Exchange meet. J. C. Fredricksen, 3527 Floradora Ave.

June 28—International Competition semi-finals: Ft. Worth, Tex. J. R. Stewart, 814 Oak, Grand Prairie; Hampton, Va. G. W. Poythress, 11 Dotson Dr., Cherry Acres, Hampton.

June 28—Aurora, Colo. Prop Busters record trials. R. W. Bennett, 1910 Elmira.

June 28—Portageville, Mo. Plymouth-Rotary meet. W. C. Kroeger, 300 E. 4th St.

June 27-28—Beaumont, Texas. Exchange Club meet (AAA). ORU; FF; SP; CLSC; ST; COM; J; RC. Don Still, 790 Liberty Ave.

June 28—Cleveland, Ohio. Lake Erie G.M.C. FFSC. J. W. Grega, 10422 Gay Ave.

June 28—Williamsville, N. Y. Flying Bisons meet. FF; OR; TL; DHLG. Donald Hobel, 70 Bigelow Rd., Buffa'o 27.

June 28—Winston-Salem, N. C. Plymouth meet. FF; RC. Ed Aldridge, 853 Watson Ave.

June 28—Oil City, Pa. Plymouth-Exchange meet. Raymond Burns, 126 Nesbit St., Franklin.

June 28—Hicksville, L.I., N. Y. Aeronuts L.I. Championships. FF; PAA; OR; TL. S. S. November, 593 Lenox Rd., Brooklyn.

CLEVELAND
Tops in Scale!

24" B-52 "STRATOFORTRESS"

NEW!
24½" KIT 195
Cleveland Simplex Multimotor Kits
Completely Prefabricated! Also
25" B-45 "TORNADO" KIT SM-175
22½" B-47 "STRATOJET" KIT SM-185
$2 ea

1" SCALE GAS JOBS!
AGAIN AVAILABLE

Boeing P-26a (Shown)... $6.95
Great Lakes Trainer $5.95

See Your Dealer Today for These and Many Other Cleveland Models

CLEVELAND MODEL PRODUCTS Co.
"Since 1919"
4506 LORAIN AVE.
CLEVELAND 2, OHIO

ENGINEERING DEGREE

Graduates in Demand

27 MONTHS

• Speed-up training in Engineering — Aeronautical, Chemical, Civil, Electrical, Mechanical and Radio (inc. TV and Electronics). B.S. degree in 27 months. Frequent trips to outstanding industrial plants. Modern lab facilities.

Earn part or all of your expenses in this large industrial center. Low tuition.

If you are called into service, while still a student, you will be prepared for a specialized military job, AND can return to school without losing credits. Approved for veterans. Enter Sept., Dec., Mar. or June. Send for free catalog.

INDIANA TECHNICAL COLLEGE
373 E. Washington Blvd., Fort Wayne 2, Ind.

HOW TO HAVE MORE FUN IN YOUR SPARE TIME

Ideal MODELS

IT'S EASY TO BUILD
This 13" AUTHENTIC SHIP MODEL
WITH CARVED WOOD HULL
No.1519 U.S. FRIGATE CONSTITUTION
(OLD IRONSIDES)

Only $1.50 COMPLETE

There is no guess work in an Ideal Kit. Prefabricated parts.

SEE THE ENTIRE LINE AT YOUR DEALER
SEND 10¢ FOR EXCITING CATALOG OF SHIP MODELS FROM 50¢ to $9.00

IDEAL MODELS
24-26 WEST 19th ST., NEW YORK 11, N. Y.

July 4-5—Brantford, Ont. Kloudsters meet. FF; TL; OR; SP; ST. W. H. Allison, 47 Nelson St.
July 5—Marion, Ill. Class AA 10th Annual Marion Lions-Plymouth Flying Circus. Edward H. Aikman, 1020 N. Market St.
July 7-16—Elmira, N. Y. National Soaring Contest.
July 9-12—Detroit Air Show.
July 11-12—Detroit, Mich. Exchange meet restricted to Mich. residents. F. P. Sposite, 9900 E. Jefferson.
July 12—McKeesport, Pa. Keystone Clippers meet. Ralph De Cecco, 513-13th St.
July 12—Ithaca, N. Y. Plymouth C of C meet. P. O. Vorhis, Bx 382, Trumansburg.
July 12—Waynesboro, Pa. Exchange Club meet. R. S. Fleming, 328 Walnut.
July 12—Spartanburg, S. C. All-Dixie Championships. SP; ST; J; COM; CLSC; FF; OR; OHLG; TL; RC. M. M. Burley, Jr., 135 Oakswood Ave.
July 12—Evansville, Ind. Model Flying Circus. V. M. Kays, 15 Main.

July 27-Aug. 2—Lakehurst, N. J. & Willow Grove, Pa 22nd National Championship Contest. A.M.A. 1025 Conn. Ave., N. W. Wash. 6, D.C.
Aug. 1-3—Cranfield, England. Lord Wakefield, FNA Cup and F.A.I. FF competitions.
Aug. 19 to 24—Detroit, Mich. International Plymouth Modelplane Contest. See your local Plymouth dealer.
Aug. 30—Brooklyn, N. Y.—Mirror Model Flying Fair at Floyd Bennett N.A.S. Daily Mirror, East 45th St., N.Y.C.
(See also contest mention in Dope Can, R/C, Southern Scene, and Western Roundup columns.)

Turbine Jets

(*Continued from page 27*)

Since high internal velocities are of less concern, internal streamlining of the system is relatively unimportant within reasonable limits. We may simply seal up a fuselage, or wing, and use it as the plenum chamber, locating the jets at handy points and placing the air pickup, or intake, either at the top (at or slightly behind the CG) the front, or split to the sides. Whether we use axial or centrifugal blowers will depend upon various considerations. A centrifugal blower is good where the air intake is "dead," that is, open to the inside of a ventilated fuselage, it may also leak less air under high pressures. It can, however, be used in pod-type jet motors as shown in the sketch.

It is a characteristic of a centrifugal blower that air rammed into it puts a load on the engine, just the opposite of what happens with an axial or fan blower, which speeds up when rammed. This means that in applications where a centrifugal blower is to be used in conjunction with ram air, the motor should run at its optimum rpm

(*Continued on page 72*)

TROPHIES

. . . the award worth winning and keeping

Never spent, never forgotten, a Russell Trophy is a lifelong treasure. Specially designed for modelers. Figures rich gold color. Bases ivory or golden walnut. Available with Plymouth and national organization emblems. Trophies, plaques, medals for any budget. Write for free modelers' catalog, or send 35¢ for general all-sports catalog.

RUSSELL BROTHERS
Dept. 7-A
112 K. P. Bldg. Des Moines, Iowa

They're Neat, Boy!

You've had car kits — but these are different! So EASY to build . . . only a few parts for quick assembly . . . the Slickest Kits you've ever seen.

F & B Model Car Kits

JAGUAR XK120
Model of the world's fastest stock car, traveling at a speed of 132.6 miles per hour. Kit Sells for **$1.49**

(By mail add 25c)

NASH RAMBLER CONVERTIBLE
Kit Sells for **$1.69**

CHRYSLER IMPERIAL SEDAN
Kit Sells for **$1.69**

COMPLETELY AUTHENTIC right down to the metal insignias and emblems.

WAIT 'TIL YOU SEE THE PLANS . . . so fully detailed . . . with step-by-step construction in picture and words. That's sure different from obscure blueprints you can't figure out.

EXPLODED VIEWS of each and every part so you simply can't miss.

YOU'LL BE PROUD of your finished cars . . . they'll be something to brag about AND JUST LOOK AT THE SMALL COST!

- QUALITY BALSA
- CRISP DIE CUTTING
- METAL HUB CAPS, EMBLEMS & INSIGNIA
- STAMPED ALUMINUM GRILLES & BUMPERS
- REAL RUBBER TIRES
- PLASTIC LIGHTS & STEERING WHEELS

F & B 's GAS MODEL AIRPLANE KITS are Tops!

F-B MODEL AIRCRAFT — 3240 LARIMER — DENVER 5, COLO.

WE DELIVER FASTER

DEALERS HOBBY SUPPLY
OTTUMWA, IOWA

Write today! On your letterhead for our big new 1953 Hobby Crafts Catalog!
DEALERS HOBBY SUPPLY
P. O. BOX 594A-5, OTTUMWA, IOWA

COMPLETE RADIO CONTROL OUTFIT

including Berkeley Super Aerotrol transmitter, receiver, escapement, tubes, batteries. Choice of Berkeley Helioplane or Bootstraps. Choice of Cub .09, McCoy "9" or K&B .09, all cement, dope, starting battery, fuel, and 6 props sent express prepaid for..... **$69.95**

TWO SPEED carburetor installed on any engine **$4.95**

ABOVE RC deal with Dmeco Livewire and Cub .14 ..... **$74.95**

ORDER direct from this magazine or send 25¢ for our complete 67 page hobby catalog. Refunded on first purchase.

CAPITOL CITY CRAFTS & HOBBIES
P. O. Box 901, 3015 Ingersoll
Des Moines, Iowa

Sensational
Revolutionary
Inverted
Rudder

CALIFORNIA Scores Again SPACER

½A
242 Sq. In
$2.50

Free Flight
600 Sq. In.
A-B $5.95

Designed by Sal Taibi

The first major change in Kit Design in 10 years **Inverted Rudder**

Spacer Kits with the built-in Perfect Power Pattern.
They "Zoom" Up and Float Like a Cloud.

Plus Choice Material Micrometer Die Cut Extra Large Plans
Formed Landing Gear Everything a Modeler Desires.

Look for the Sign of the Spacer, the Inverted Rudder.

See Them at Your Dealer.

Another First for
California Model Co.
5885 FALCON AVENUE
LONG BEACH 5, CALIFORNIA

Fuel Tanks—Control Parts—Boat Props.
Plane Kits—Pee Wee Boat—Ski Girl.

The Model Biz

Inside dope from the model industry; kits, engines & accessories

■ Comet Model Hobbycraft has a new line of high-gloss plastic paint in 14 colors. CMH's Morrie Shamberg says it's "touch dry" in 5 minutes, thoroughly dry in 20 minutes. In bottles, 15c per. Also new from Comet: cement specially formulated for leathers, shells, beads, fabrics. 10c the tube . . . deBolt Model Engineering Co. offers for free to anyone requesting an interesting "fact sheet" titled "Radio Controlled Model Aircraft" . . . Better have your sun glasses handy when you go down to the hobby shop! Scientific has a fluorescent ink-printed window streamer plugging its F-86/P-51 2-for-1 combo-kit that'll knock your eye out.

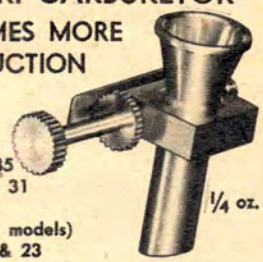
Wanna new Mercury—for free? With the introduction of the new Ohlsson Gold Seal fuels, a $5,000 slogan contest is underway featuring a '53 Mercury automobile as first prize, plus 25 additional prizes including TV sets, bicycles, wrist watches, radios and cameras. It's an easy contest to enter. All you do is write a brief slogan about the new Ohlsson Gold Seal fuels which are packaged with contest entry forms—or the slogan can be written on a plain sheet of paper and sent in with the coupon "button" from the top of any O.G.S. fuel can. Contest closes Sept. 30, 1953.

OWN A *REAL* WASP!
See-buy-fly the new power-ported Model H . . . *at your dealer's.*

NOW ONLY
$5.95 FREE FLIGHT
$5.70 U-CONTROL

HOLLAND ENGINEERING CO.
11346 EAST BROCKWAY STREET
El Monte, California

STEADY POWER FOR STUNT
VENTURI CARBURETOR
2 to 3 TIMES MORE FUEL SUCTION
$2.50
For
FOX 29 and 35
VECO 29 and 31
K&B TORP 29
(1952, 1953 models)
K&B TORP 19 & 23
(1952, 1953 models)



¼ oz.

GREATER POWER
CONSTANT POWER DURING ALL STUNT MANEUVERS
EASY TO INSTALL, NO SPECIAL TOOLS REQUIRED
STATE MAKE OF ENGINE

$1.00 FUEL LINE FILTER

.1 oz.

LARGE SCREEN AREA
WON'T CLOG EASILY
250 MESH
STAINLESS STEEL SCREEN

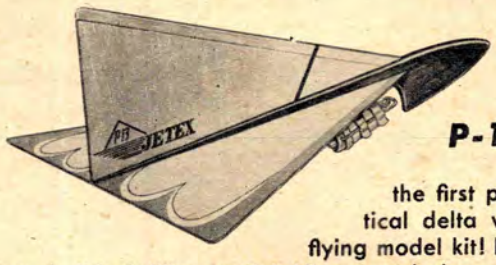
Send Check or Money Order to
ENGINE AID PRODUCTS
P. O. Box 524, Rahway, N. J.
No C.O.D. Please
PATENT APPLIED FOR

Designed for Flight

Yes . . . JETEX KITS are attractive, simple and rugged — but above all, they are designed to FLY . . . and that's what free-flight modellers want!

McDonnell F88A Voodoo

a true scale model jet! Powered by the Jetex #50 engine, this sensational model provides thrilling realism and outstanding performance. Kit includes all balsa, die-cut parts and features exclusive AEROFORMED construction for quick, easy, strong assembly. 13" span, 15½" length; weight—less engine—under 1 oz. With Air Force decals and exploded view plans. Price $1.25



P-13

the first practical delta wing flying model kit! Easy to build, thrilling to fly! All pre-cut balsa parts, full scale three view plans, detailed assembly and flying instructions . . . engine clip . . . in kit. For use with Jetex "50" jet engine. Price 60c

AMERICAN TELASCO LTD. Huntington, New York

Photo below shows Lou Andrews, contest designer for Paul K. Guillow Co. with the Guillow Memorial Award which will go each year to an individual who has demonstrated "outstanding achievement in the field of model aviation." The AMA will supervise its presentation at the request of Mrs. Guillow.

Cleveland Model Products Company is the new name for the former Cleveland Model & Supply Company. Established in 1919, CMPC is entering the toy field with

(*Continued on page* 81)

Barracuda

with speed proved 3 point suspension

The Barracuda is a prefabricated, all balsa, speed boat that can be assembled and fitted with either electric or ½A gasoline motor in one hour. Complete hardware consisting of mounting screws, threaded propeller shaft, brass stuffing box, special 2 bladed propeller and rubber universal are also included. The component parts are finished so finely that painting can be done without sanding. Explosion type, easy-to-read, pictorial plans are supplied with each kit. This 14" long beauty will give many thrilling hours of speedy performance.

$2.50

2 new speed kings by MASTER MODELCRAFT

RYAN-ST

with die-stamped metal cowl

Master Modelcraft's speedy new ½A replica of the famous Ryan-ST completely prefabricated with fully shaped fuselage and wing, die cut balsa parts preformed wire landing gear, complete hardware, and for the first time in low cost kits, a die stamped and punched finished metal cowl.

The graceful wing spans 17½". Here is the epitome of prefabricated, beautifully scaled, model design, suitable for team racing or general sport flying. The finished model is beautiful enough to grace your mantlepiece as an airplane of a the by-gone open cockpit era.

$2.50

SKYLARK
Sensational half-A free flight. 31" span. **$2.00**

PRIMER
Realistic profile for stunt, sport. 18" span. **$1.40**

FLIP-FLAP
Revolutionary full stunt job. 24" span. **$3.50**

WING-DINGUS
Experts' choice for stunt, sport. 16" span. **$2.25**

add 25c per kit by mail

MASTER MODELCRAFT
727 Westchester Ave.
New York 55, N. Y.

WING DING
Tops for half-A contest flying. 18" span. **$2.25**

HOWARD "IKE"
Howard's famous "Ike" scale racer. 20" span. **$3.00**

SMALL FRY
Goodyear prototype for half-A team racing. 17½" span. **$2.50**

BRITISH SE-5
Super prefab half-A scale. 17" span. **$2.50**

(Continued from page 69)

under ram, which means it may race when the model is not in motion. Since it is usually better to locate the engine within the plenum chamber to take advantage of its heat and exhaust gases this means that it will operate in a supercharged condition.

The way a glow motor will wind up under such conditions may surprise the builder the first time he tries it. Operating well above atmospheric pressure, the engine really stuffs itself with air and water condensation and it can get very hot in the process.

For this reason it is a very good idea to use cold plugs and fuel in engines put to this use.

Pressure jets work to best advantage where mechanical advantage can be taken of their unique characteristics, one of the best applications being driving helicopter rotors, where a stream of high speed air emerging from a blade tip can produce considerable rotational speed and lift. For scale type models of fighters they are not quite as good as ducted fans, except where highly streamlined and fast jobs are to be used, or where used in conjunction with a thrust augmentor, which we'll discuss in a moment.

From the above material the reader should be able to arrive at workable jet propulsion with a standard engine for his jet project. As best thrust will not be as high with a propeller, so the weight must be kept down. But nevertheless, workable scale type jet models can be built and flown if a little attention is given to detail, and surprisingly "hot" models can be built by anybody willing to take a little extra care with internal finish and experiment a bit with intake and exhaust diameters.

Our interest in model jets is largely limited to such uses as scale model power-methods of the big ships, and for special model uses, such as helicopters, where, by sacrificing some mechanical efficiency we can do away with a great deal of mechanical complexity.

This does not mean that extremely good performance lies beyond the reach of our

FOR THE BEST BUYS ★ ★ THE LATEST IN RADIO CONTROL EQUIPMENT

TOPS IN QUALITY AT DOWN TO EARTH PRICES

Make Essco Your R/C Materials Headquarters—Check this Listing and be Convinced

COMING SOON—RELAYTROL—Available July 1—Combination Sensitive Receiver Relay—Escapement Saves weight, components, batteries, money.

SPECIAL LIGHTWEIGHT SIGMA 5F, 5000 ohm coil, all the 5F features retained, approx. same weight as SIGMA 4F. Delivery from stock, bargain priced at..... $ 5.95

SIMGA 4F, 8000 ohm, new mfrd..... 7.00

GENERAL ELECTRIC MINIATURE, 10,000 ohm SPNC contacts, swell for hard tube sets $2.45, SPNO contacts..... 1.95

CRYSTALS, 27.255 mc./.04% tol. PETERSEN Z9A with ceramic plugin socket..... 4.95

ALNICO 5 DISC MAGNET, 1" dia. x 1/4" thk with ctr hole, ideal for proportional rudder control 1.25

WHIP ANTENNA, 3 tapered threaded sections, 9½ ft. long with top of cabinet base mount. Will boost your power..... 2.95

6 VOLT DYNAMOTOR, delivers 180 volt/50 ma, PM field requires low battery current..... 6.95

6 VOLT DYNAMOTOR, delivers 180 V/50ma & 250 V/125 ma. our biggest bargain..... 11.95

12 VOLT VIBRATORPAC, for operation from new model cars with 12 volt battery, delivers 250 V/40 ma..... 7.95

GOOD TUBE BUYS

RK-61	$3.45	XFG-1	$3.35	1S4	$1.35
3S4	1.35	3V4	1.15	3D6	2 for 1.95
3A4	1.00	3A5	1.35	1S5	1.10

WILLARD NT-6 STORAGE BATTERY..... 2.95
CHARGER RECTIFIER & TRANSFORMER..... 3.45

"TINY ATOM" ELECTRIC MOTOR, 1½ V/.28 amp. 6000 RPM .187 in. oz. torque, 1/2000 HP 1.65

MOTOR with variable speed gear box..... 3.35

PRECISION WESTON 2" PANEL METER, 0-5 ma..... 2.95

SIGMA 4F RELAY COILS, 3000 & 10,000 ohm, fine for repairing those defective relays..... 1.25

QUENCH COILS for the MILLER & other hard tube sets our own mfr..... 1.45

TUBULAR TRIMMER CAPACITORS, 1-8 mmf., ERIE mfr. ..... .35

THIS MONTH'S SPECIAL

ESSCO SUPER III, TOPS IN RECEIVERS, 3 new subminiature inexpensive high efficiency tubes in modern circuit, low battery drain with reliable long distance relay action. Suitable for any type of control. Completed unit with tubes & relay..... $24.95

ESSCO SUPER II, a new 2 tube reliable receiver at single tube price, complete with relay.... 19.95

SIMPLE SINGLE, Mac's new 3S4 hard tube receiver at a kit price, complete with relay.. 12.95
Parts package to build your own..... 9.95

THE LORENZ RECEIVER PARTS PACKAGE, complete with tubes & Sigma 5F (special) relay 13.95

MILLER RECEIVER PARTS PACKAGE, all parts, tube & SIGMA 4F relay..... 11.95

AIR TRAILS PI-27 RECEIVER PARTS PACKAGE, includes every item needed W/tube and 4F relay..... 13.95

ESSCO SUPER X, our own new "HIGH POWER" SPECIAL, 2 tube circuit, full 5 watt input. Easier to adjust than single tube jobs. You can always bring them back with this set. Complete with tubes, antenna and cabinet.... 27.95

AIR TRAILS PLAN R-101 TRANSMITTER PARTS PACKAGE, all parts, tube, crystal antenna, & remote keying button..... 14.95

AIR TRAILS MAC II, 2 TUBE 5 WATT TRANSMITTER, complete unit in new standard metal case with meter, antenna, remote keying button & power supply (or batteries) nothing else to buy..... 32.95

FIELD STRENGTH METER-TEST SET, with 0-5—0-50 ma., 0-5 & 0-250 volt ranges. The all-around test set, uses a high grade 0-500 micro-amp. meter..... 17.95

REVOLUTIONARY PROPORTIONAL CONTROL SYSTEM, Your single channel equivalent to multi-channel system. Operates servo-motor control in model. Complete control box, not a kit..... 14.95

COMPONENT BUYS

MINIATURE 25,000 & 10,000 ohm potentiometers ..... .45

CERAMIC TRIMMER CONDENSERS, 4-30, 7-45 mmf. ..... .45

RECEIVER PLATE COIL, low loss with iron core slug..... .35

CLOSED CIRCUIT METER JACK..... .30

OPEN CIRCUIT METER JACK ..... .25

STANDARD PHONE PLUG..... .35

PHONO PLUG & SOCKET for metering, pair.... .15

AIR TYPE VARIABLE CONDENSERS, 15, 25, 50 mmf. any type..... .45

REMOTE PUSH BUTTON KEYING SWITCH.... .45

MINIATURE TUBE SOCKET, wafer type 10c molded ..... .15

SUBMINIATURE tube SOCKETS, 15c, FLEA-CLIPS, 4 for..... .10

HEARING AID TYPE BYPASS CONDENSERS, all values ..... .15

CERAMIC BYPASS CONDENSERS, all values.... .10

HIGHEST GRADE ½ watt carbon resistors, all values ..... .10

LINEN BASE BAKELITE BOARDS for all receivers ..... .25

FLEAWEIGHT HOOKUP WIRE, 5 colors, 5 ft. plastic insulation ..... .25

WE CARRY IN STOCK MOST ITEMS SPECIFIED IN NEW MAGAZINE WRITEUPS OF TRANSMITTERS, RECEIVERS, GADGETS ETC.

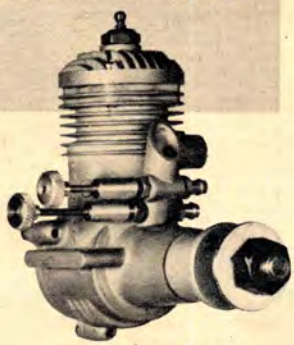
SEND FOR FREE CATALOG, MONEY BACK GUARANTEE ON ALL ITEMS, SAVE COD fees, include postage, excess refunded. Minimum order $3.00. SPECIAL BONUS—#467 67½ volt B BATTERY FREE with $10.00 order.

ELECTRONIC SPECIALTY SUPPLY CO., 58 Walker Street, New York 13, N. Y. WAlker 5-8187

CAMERON .19 NEW

2-Speed Engine

For Control Line and Radio Control Flying



Advanced Design Features

- More power for size and weight
- Maximum speed change
- High operating efficiency on non-nitrated fuels
- Extra long life
- Highly efficient operation with a broad range of propeller sizes
- Extra rugged construction to withstand severe crack-ups
- Low fuel consumption

for Outstanding Performance

If you are in the market for a class A engine and have any interest in 2-speed operation which gives the added advantage of being able to change the engine speed while the plane is in flight, you won't go wrong in buying a Cameron .19 2-speed engine.

If you are not yet ready for 2-speed operation, you can operate the Cameron 2-speed engine the same as any conventional single-speed engine and at any time add a fuel line selector valve and use the engine for 2-speed operation.

Only $11.95

available now at your dealer's

*Coming Soon

A new line of Cameron 2-speed accessories for use with this engine will be available soon.

Watch for these outstanding new 2-speed developments.

Manufactured by
CAMERON PRECISION ENGINEERING CO.
Chino, California

it's HERE! the "STUKA"

½A Flying Scale Models

With REDI-CARVED and HOLLOWED Fuselage!

P-51, Vo. Corsair, F.W. 190, TYPHOON, ZERO, SPITFIRE $2.95 ea.

Accurate ½" scale reproductions with cut-to-shape Wings, Stabs & Rudder plus All Hardware. Average span 18". Detailed plans for a really fine model.

STUKA $3.50
23½" wing span

The New "SPACE KITTEN"

Radio Control or Water and Ice Boat

Eliminates Fly Wheel, Stuffing Box and other marine hardware necessary for conventional type boats.
22" long pontoons, overall width 10½"
18½" x 3¼" CABIN—2 RADIO Compartments 3' x 5½" and 2½" x 6"
With 099 CUB—Weight 13 ounces less radio—only $3.95

Model Racing Sailboat Kits ½" Scale

MOTH ...$1.50
STAR ....$2.50 LIGHTN'G $2.50
SNIPE....$1.95 COMET...$1.95

Send Postcard for 16 Page Circular

ConSOLIDated

3087 3rd Ave. (AT-753) New York 56, N. Y.

COMET'S

"NIFTY THREE" of '53!

NEW "M" "FIGHTIN' FLYERS"

E-Z-TO-BUILD
"Struct-O-Speed"

KIT NO. M7—DOUGLAS SKY-KNIGHT F3D-1– Wingspan 14¼ inches; length 12⅝ inches—The Navy's twin-jet long-range carrier-based fighter which uses radar to locate targets. Like all "M" kits, this model has shaped all-balsa Holl-O-Wing, finished plastic parts and bubble canopies, die-cut, ready-to-put-together parts. Realistic decals, easy-to-follow plans —pre-fabed all the way!

$1.00 EACH

KIT NO. M9—NO. AMERICAN MUSTANG F51 — Wingspan 15⅛ inches; length 12¾ inches—Don't sell the Mustang short! Does a great job where jets can't operate; cruising range, 2200 miles. Favorite of many model builders.

KIT NO. M8—GRUMMAN COUGAR F9F-6 — Wingspan 12⅛ inches; length 14¼ inches—A swept-wing Navy jet in the "over 600 mph" class. Contains all the features that make Comet's "M" kits tops in the dollar field, with EZ-to-build Struct-O-Speed construction. Pre-fab to the Nth degree!

Comet has produced the three niftiest surprises of the year — and you'll find them at your Comet dealers now! You've been asking for more of these marvelous "M" kits — here are three brand-new "hot" war planes! The PT Boat that made history in the last war — reproduced in a terrific model! As usual, each of these Comet kits is tops in value! Buy 'em — build 'em — fly 'em — float 'em! And you "plastic" fans — wait 'til you try Comet's great new Paint for Plastics!

NEW! PT BOAT

KIT NO. J3—PATROL TORPEDO BOAT Realistic model of famous PT-9—the "Suicide Boats" of World War II. Four torpedo tubes; capable of 50 knots. You'll buy and build it for "romance" and thrills!

75c

NEW! COMET PAINT for PLASTICS

Another winner! A high-gloss paint, made by a special formula to adhere to plastic surfaces. Will not chip or become brittle with age; "Scotch Tape" won't peel it off! Amazing coverage! 14 colors: Dark Blue, Red, Orange, Yellow, Green, Sky Blue, White, Jet Black, Gray, Rich Gold, Silver, Thinner, Chocolate Brown, Olive Drab. Dries to the touch in 5 min. One coat covers.

Dries to the touch in 5 minutes!

10c

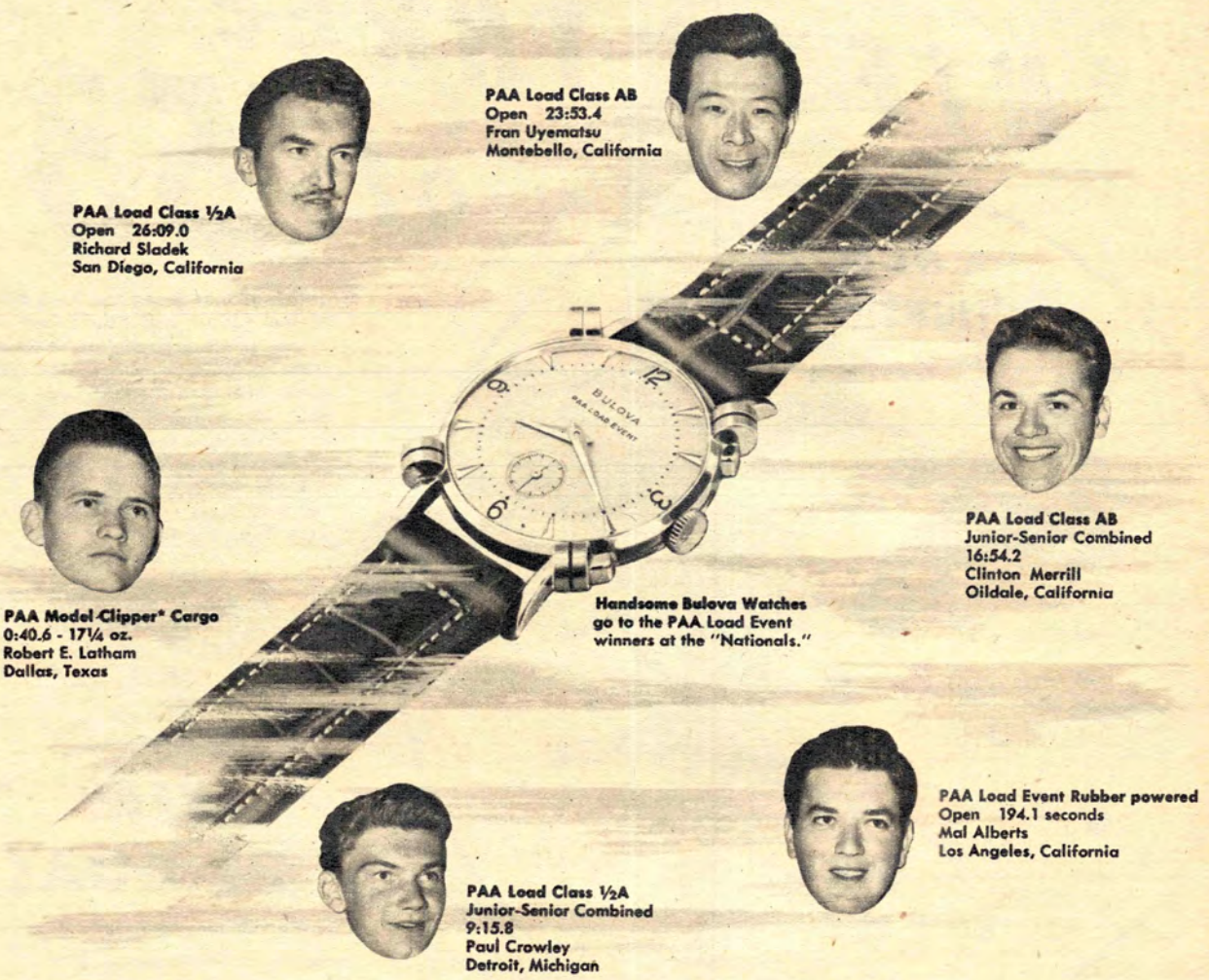
COMET IS THE WORLD'S LARGEST MANUFACTURER OF MODEL AIRPLANE KITS!

Yes — more model builders build more Comet kits than any other. And Comet has the biggest line to choose from — 122 different models — each an authentic scale model. Comet has the manufacturing facilities, the design know-how, and the sales volume, to bring you the best models at the lowest possible prices!

COMET MODEL HOBBYCRAFT, INC.
501 WEST 35th STREET CHICAGO 16, ILLINOIS

Record Racker-Uppers

at the 1952 "Nationals"



PAA Load Class AB
Open 23:53.4
Fran Uyematsu
Montebello, California

PAA Load Class ½A
Open 26:09.0
Richard Sladek
San Diego, California

PAA Load Class AB
Junior-Senior Combined
16:54.2
Clinton Merrill
Oildale, California

PAA Model Clipper* Cargo
0:40.6 - 17¼ oz.
Robert E. Latham
Dallas, Texas

Handsome Bulova Watches
go to the PAA Load Event
winners at the "Nationals."

PAA Load Event Rubber powered
Open 194.1 seconds
Mal Alberts
Los Angeles, California

PAA Load Class ½A
Junior-Senior Combined
9:15.8
Paul Crowley
Detroit, Michigan

PAA LOAD EVENTS

● These exciting contests provide model flying that brings out the basic purpose of aviation itself—*to carry a payload.*

First sponsored by Pan American in 1948, PAA Load Events are free flight headliners at many local and regional meets—and a highlight of the "Nationals." Why not start your PAA Loader today?

For rules and specifications for 1953, write to: Educational Director, Pan American World Airways, 28-19 Bridge Plaza North, Long Island City 1, New York. *Trade-Mark, Reg. U.S. Pat. Off.

1953 "NATIONALS"

July 27-August 2
U. S. Naval Air Station, Willow Grove, Pa.
(Near Philadelphia)

PAA LOAD EVENT AWARDS at "NATIONALS"

1st—$100 and Bulova watch
2nd—$50 and Bulova watch
3rd, 4th, 5th—Bulova watches
1st to 5th, Rubber powered—Bulova watches

PAN AMERICAN

WORLD'S MOST EXPERIENCED AIRLINE

If you're proud of your ship

keep it bright with new Aero Gloss

plane kleener

SAFE ON ANY SURFACE
SAVES ANY SURFACE

Aero Gloss has it again! The line that keeps up with modelers' needs now offers a new plane cleaner that removes ALL kinds of dust, mud, grease, oil, fuel, etc. *safely* and *surely*. Keep your plane looking ever-new — try it today — At Your Dealer's.

8 oz. Can, 50¢.

pactra
CHEMICAL COMPANY

1213 North Highland Ave. Los Angeles 38 California

Most Complete Line of Model Finishes

commercial RF choke form with leads ready-attached, or you can use a carbon resistor of 1 meg. or higher. In any case the form should be at least 1" x ¼" dia.; a little larger will not harm.

Any iron core form of good grade that is ⅜" dia. will do for L1, but be sure you get one that has a core designed for high-frequency work. The one used here was considerably longer than needed, and was cut down to the length specified. It mounts by spring action of the chassis, and the core screw has spring tension on it, to hold it firm under vibration. The shank of C1 was slotted and fitted with a music wire triangle spring, as illustrated, on page 10, Feb '53 A.T.

In order to aid the beginner, we will give a step-by-step description of connections in our next issue. Meanwhile, here is the listing of parts so the advanced R/Cer can complete his S/S.

Parts List:

L1—⅜" dia. iron core form (see dwg.): Control Research. L2—National O S R quench transformer: Control Research. RFC—Choke wound on 1" x ¼" form: Control Research. C1—Padder condenser, Arco #308, 450-1390 mmf.: Hudson Radio & TV Corp. (NYC). C2—100 mmf. ceramic condenser, CRL D6-101. C3—Midget paper .05 mf. 150 V.: Control Research. R—220,000 ohm 1/3 W. carbon. Ry—E. D. polarized relay, 4000 ohms: Polk's. V—Raytheon 3S4 tube. 7 pin miniature socket for tube.

Linan Bakelite chassis, 3" x 2⅛" x 1/16". Two 1" long 2-56 screws for socket. Two 11/16" long bushings for sockets. Four solder lugs.

It is understood that complete kits for this receiver will be available from Control Research and Electronic Specialty Supply Co. For those who wish to purchase their own parts, C1 may be any padder of higher value—plates may be removed to produce about the capacity range specified; this is not critical. Other makes of quench coils may not have the colored lug markings. In this case, connect the inside end of the larger coil to C2, and the outside of the smaller coil to relay. Shield can be removed from OSR transformer.

CURTISS P40F GAS MODEL

New Improved Model

48" Span. Free flight or U Control.

Improved with new 2¾" alum. spinner and 3" Veco alum. disk semi-pneumatic rubber wheels. Planked type body, parts printed on balsa, and all parts. Set **$9.00**

REPUBLIC P47D GAS MODEL

35¾" span, ⅞" scale. Length 30½". One-piece moulded, clear plexiglas cockpit enclosure. 2½" scale alum. disk rubber wheels. Body planking full size plans. Uses B or C motor. Set **$5.95**

9' TAYLOR CRAFT GAS MODEL

9 foot span. Can use Radio control. Set has 36 ready cut wing ribs, cut plywood body formers, 16" carved prop. tail wheel unit, 2 full size plans, printed balsa, silkspan, etc. Uses "C" type motor, single, twin, or 4 cyl. motor. Set without motor or wheels, postpaid..... **$17.50**

Extra pair of 4½" airwheels, $3.00

VOUGHT F2G GAS MODEL

41" span. U Control B or C Motor. Scale model of 1949 Thompson Trophy winner. Set has 2½" scale rubber tired alum. disk wheels 4¼" aluminum cowl, body planking, moulded, clear plexiglas cockpit enclosure, plastic spinner, etc. This is one of the finest equipped models in the world. Const. set..... **$7.00**

Curtiss F11C4

32" span. 1" scale. Const. set. Rubber driven..**$4.50**

N. American B-25

33⅛" span. ½" scale. Const. set. Rubber driven...**$4.00**
Gas model type.....**$7.00**

Grumman-F3F1

32" span. 1" scale. Const. set. Rubber driven...**$3.75**

Elf 4-Cyl. Gas Motor

Elf ½ h.p. 4¼" wide. Price **$49.50**

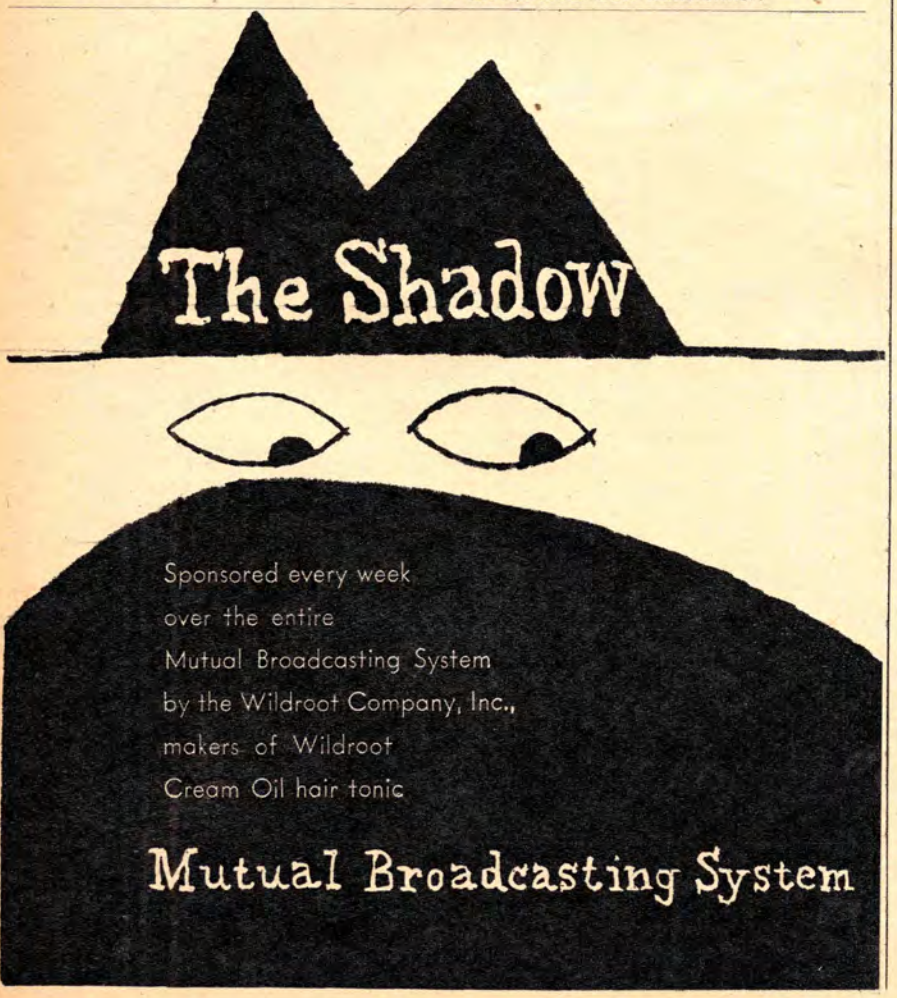
BOEING PT17 GAS

45" Span. Can use 5 cyl. M5 motor to scale or B or C type motor. U control. Set has scale rubber wheels and all spec. parts, ready cut wing ribs, tail wheel unit and wheel. Const. set.. **$9.95**

Add 25c for postage. Catalog—10c coin

MINIATURE AIRCRAFT CORP.

83 Low Terrace, Staten Island 1, N. Y.



Jim Walker

Firebaby Biplane

Stunts like a dream and has power to spare. Royal Spitfire engine has Jim Walker "Supercharger" modification for greater power, instant starting, fuel economy. Buy it ready to fly. All parts finished, painted, fuel-proofed. Span 19 in., wt. with motor 4½ oz.

Complete with engine $9.75
Without engine 3.50

A-J AIRCRAFT CO.
1166 N. E. 31st Ave., Portland 12, Oregon

RADIO CONTROL

R.C.H. RECEIVER for 27 M.C.
Highest Grade Electrical Parts
Assemble it yourself. —It's Interesting— No. 127 KIT **$13.75**
All Parts Included, ready to Assemble

R. C. H. #227 Crystal Controlled 27 M.C. Transmitter. No license required

KIT, $24.75 Includes all Parts (except Tube & Batteries). Ready to Assemble; Antenna Key; 0-50 Meter.

INSTRUCTION MANUAL
with complete circuits, diagrams & directions for flying model airplanes by Radio Control. *Price Postpaid.* Send for Free Catalogue. **50 CTS.**

RADIO CONTROL HEADQUARTERS
Belmar, New Jersey

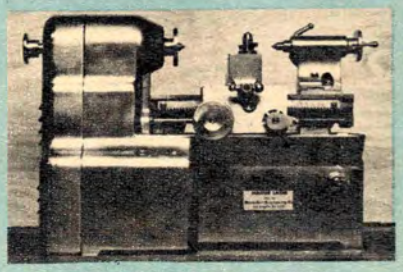
---

12 beautiful power boat construction kits —21" to 33½" length. $2.95 to $9.75. Write for free literature on boats, motors, fittings. At all hobby stores. Chris-Craft, Owens, Harbor, Vinyard, Colonial. Large boat construction from factory plans. U. S. A. and Armed Services only.

DUMAS PRODUCTS
2114 S. Alvernon, Rt. 8-Box 853, Tucson, Arizona
World's Largest Builder of Motor Boat Models

SHOWCASE

TRY YOUR FAVORITE HOBBY SHOP FOR ITEMS PRESENTED HERE. ALL DATA CHECKED CAREFULLY, BUT IS SUBJECT TO CHANGE

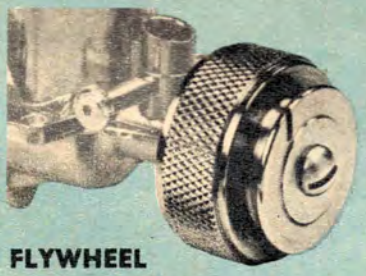


TINY BUT TERRIFIC

Perfect gift for Pop! Master "B-S" Portable Lathe offered by Corr's in D. C. Metal-turning, also handles wood, plastics. Automatic longitudinal power feed, 110 v. AC motor in base. Length 10½", width 3¾, weight 7¼ lbs. $99.50 for standard ball bearing version; 14 lathe accessories, for special work, $34.50.

AIR STORIES

Another good suggestion for Father's Day! "The Fireside Book of Flying Stories" edited by Paul Jensen. Simon & Schuster, $3.95. Its 464 pages offer short stories, fragments, vignettes, observations, reports essays, a novelette and science fiction story selected from writings of the Age of Flight. Dad'll like this.



FLYWHEEL

Latest engine accessory from Herkimer Tool & Model Works, mfers of the OK Cubs, is this corrosion-protected flywheel. For use on model boats and cars, it was designed for operation with either the Cub .099 or .14. Has integral spin-start groove. Weight is 2½ oz., dia. is 1¼", width is 11/16". Fits perfectly.

FREAKY

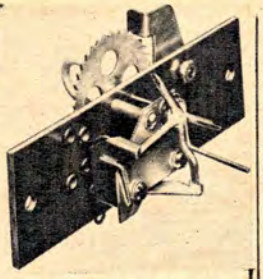
Aristrol frequency meter with printed circuit is latest creation of Aristo Craft Distinctive Miniatures. Sells for $2. Works on 27.255 mc. for tuning up transmitters; it indicates power output under test or operating conditions. Bulb's brightness tells story. In sturdy plastic case to protect unit in transit.

SCIENTIFIC'S BOEING

Near-scale version of Boeing's F4B-4 Navy carrier fighter by Scientific will gladden hearts of control line fans. Pre-fabbed kit costs $2.95. Takes .02 to .074 motors; spans 17½ in.; length is 14 in. Weighs about 5 oz. Carved balsa fuselage, formed balsa wings, tail assembly, struts; formed metal cowl. Nifty, yes?

Present the Old Boy with a sports car (model—that is!) for Father's Day.

TOPS IN RADIO CONTROL



Signal and Get What You Want!

BONNER COMPOUND ESCAPEMENT

A self neutralizing, four position, speed regulated control unit . . . No sequence to worry with! Practical, foolproof. Designed for operation with any single channel radio control while duplicating performance of three channel control. No extra batteries or channels needed.

Wt. 0.8 oz.—⅛ Rubber Drive.
3 V. Coil—1" x 3" Mtg. Plate

$14.95

Address all inquiries to

BONNER SPECIALTIES

1607 S. Bundy Drive
Los Angeles 25, Calif.

Frontier EARLY WESTERN MODEL KITS

LOOK FOR THE RED AND YELLOW BOXES!

SURREY

Most everyone has heard of the famous "Surrey with the fringe on top" . . . that graceful favorite of yesteryear. Recapture the spirit of another era by building this realistic Frontier model!

$1.50

SEE OUR COMPLETE LINE OF WESTERN KITS AT YOUR FAVORITE DEALER

REVEALED AT LAST! AMERICA'S MIGHTIEST

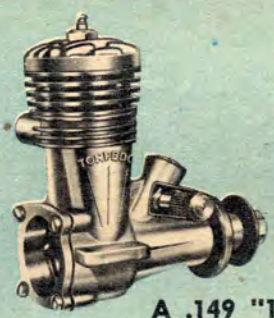
WAR PLANES!

- Pictorial Album of Our Newest Fighting Planes
- Includes Experimental Craft Not Yet in Use
- Complete Description of Each Plane
- Official US Gov't Photos

That's right! Now you can see—for the first time—America's very latest flying weapons. Written by Lt. Comdr. Dale W. Cox, Jr. (U.S.N.), "U.S. Fighting Planes" contains page after page of thrilling photos of all the planes now being used by our Army, Navy, Air Force—plus many secret craft not yet in use! You'll find complete descriptions of each plane's speed, armament, dimensions, range, etc. Also explanations of military aircraft symbols, definitions of aeronautical terms, etc.

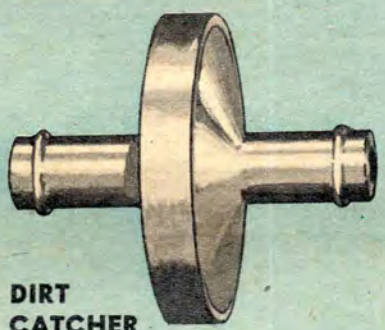
READ IT 10 DAYS FREE! Send no money to examine this exciting book. On arrival pay postman only $2.00 plus postage. If not satisfied, return it within 10 days for refund. Or, save postage and send $2.00 today!

ARCO PUBL. CO., AT-5, 480 Lexington Ave., N. Y. 17, N. Y.



A .149 "15"

Say "hello" to K&B's Class A powerplant, Torpedo "15"—displacement actually is .149. Bore: .580; stroke: .550; price: $8.95. This new Torp fits K&B's Class A Kiwi free flight kit model like a glove. Lew Mahieu of contest fame says the rpm count on this job will come as a big surprise when you first fire 'er up.



DIRT CATCHER

Because the needle valve opening of most .29 motors when properly adjusted is only .003-.004" dia., particles of dirt in fuel can lodge in valve and change engine performance. So Engine Aid Products has this 250-mesh stainless steel wire screen fuel filter to eliminate any clogging action in valve.

NEW 'NAMELS

Pactra Chemical Co's 'Namel Color Kit #69 costs 69¢, has 8 bottles of color finish for plastic cars, planes, ships, train kits and toys. They also work well on wood, glass, metal, ceramics and figurines. There are 7 colors: red, blue, yellow, black, white, gold, chrome silver, plus bottle of thinner. Convenient package.

GET 'EM WHILE THE LIMITED SUPPLY LASTS!

Air Trails Model Annual for 1952—50¢

Air Trails Model Annual for 1953—50¢

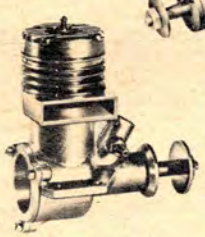
Air Progress—History of Aviation—50¢

Order *now* from Air Trails,
Back Order Dept.
304 East 45th Street.
New York 17, N. Y.

FOX 59

HP — 1+, WT — 10½ oz.

WORLD'S FINEST FOR STUNT AND FREE FLIGHT



FOX 35

HP — ½+, WT — 6 oz.

FIRST — 1950 AND 1951 NATIONALS

FOX for . . .

- EASIER STARTING
- SMOOTHER, STEADIER RUNNING
- MORE POWER — LESS WEIGHT

FOX MANUFACTURING CO., INC.
7401 VARNA AVE., NORTH HOLLYWOOD, CALIF.

"BONZO"

½-A PLANS

HERE IS A REAL "HOT" LITTLE SHIP FOR YOUR .035-.049 ENGINE. 1" TO 1' SCALE (16" SPAN, OVER 17" LONG). FULL SIZE PLANS INCLUDE ALL RIBS, FORMERS, AND DETAILS FOR BOTH SCALE AND ENLARGED TAIL SURFACES FOR STABLE FLIGHTS. 20 CENTS PER PLAN, POSTPAID. TAPE 2 DIMES TO A SLIP OF PAPER WITH YOUR NAME AND ADDRESS & "BONZO" ON IT AND SEND IT TO: AIRCRAFT PLAN CO.- P.O. BOX 188, LEVITTOWN, N.Y.

FOR THOSE WHO HAVE "A" AND SMALL "B" ENGINES, WE HAVE PLANS FOR A 24" SPAN "BONZO." THESE PLANS ARE 35 CENTS EACH AND ALSO INCLUDE: 28" MINNOW, 26" SWEE-PEA, 28" LONG "MIDGET", 28" LEIGHNOR SPECIAL & 24" WITTMAN'S "BUSTER."

OUR 45" SPAN F7F "TIGERCAT" WILL SATISFY ANY TWIN-ENGINE FAN WHO LIKES BIG JOBS. A GOOD "BUY" AT 50 CENTS, POSTPAID. THIS PLAN IS NOT FOR BEGINNERS.

WHEN ORDERING 3 OR MORE PLANS, SEND A MONEY ORDER..... ON SINGLE PLAN ORDERS, COINS ARE O.K. IF TAPED TO LETTER OR A PIECE OF CARDBOARD. PLEASE PRINT YOUR NAME AND ADDRESS.

AIRCRAFT PLAN CO.
P.O. BOX 188 LEVITTOWN, N.Y.

A ready-to-fly model and Father's Day: the perfect gift combination.

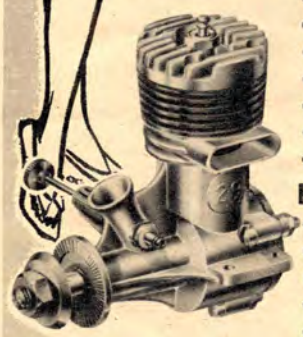
WOW...it's "Slick as a Chick..."

The SQUAW

Another fine "U" Control plane for smooth precision aerobatic flying. A wing area of 346 sq. in. with full span flaps and a wing span of 38 in. For engines ".19" to ".29" cu. in. displ.

OTHER "U" CONTROL KITS

- WARRIOR
- BRAVE
- CHIEF
- PAPOOSE
- SCOUT
- MUSTANG
- SMOOTHIE



FREE FLIGHT

- DAKOTA
- SIOUX
- COMANCHE
- NAVAJO
- TAYLOR CUB

VECO 29 & 31 GLOW PLUG ENGINES

The Champions' Boast from Coast to Coast!

An engine of quality packed with power.

For U control or free-flight use. Economical to operate and built to last.

VECO WHEELS

The world's largest and best line of rubber tired wheels for models. Authentic die-cast hubs add that finishing touch to make the model have scale appearance.

VECO ACCESSORIES

Veco control accessories are well known by the experienced modelers as being engineered for the smoothest operation.

ASK YOUR DEALER TO SHOW YOU THE FINE LINE OF VECO PRODUCTS

Veco PRODUCTS

HENRY ENGINEERING COMPANY
BURBANK, CALIFORNIA

Southern Scene

(Continued from page 67)

the increase in the South." John McHugh is the live wire in Montgomery, Ala., but gets no support.

Significant developments are taking shape at Lockheed Aircraft Corporation. It all started when James V. Carmichael, member of Lockheed's Board of Directors, addressed the Management Club: "We are interested in youth activities because youth today is the management of tomorrow." Carmichael cited three men at Lockheed and their intense interest in civic projects, numbering among them the "Key" man in model aviation: James Wade!

They already have two organized model clubs at Lockheed. The older flyers are known as the Lockheed Engineers, with Bill Milligan, President, and a club of youngsters called the "Kittyhawks." The Engineers won 40 first places in free flight last season with as many seconds and thirds. George Perryman is one of the leaders in the Lockheed clubs. George is now drafting engineer for the B-47's and the official reporter for Southern Scene out at Lockheed. The Engineers will handle all F/F and R/C at the Southeastern with Ernie Knichel, directing.

These former W. Coasters are now Georgians, Suh: Andy Peterson, member of the '49 Wakefield team to England, and Carl Friend, who judged flying scale in the '51 Nats in Dallas; both are welcome additions to Southern officials.

Fred Turner, vet flyer, will direct Wakefield and FAI eliminations June 14 (4:30 a.m.) in Atlanta. Write him, Stillwood Drive, Hapeville, Georgia, if you want in. This would conflict with the Nashville Triple A, but for the fact that Carl Miller has requested a similar elimination on another date at Cumberland Field. Carl says, "Pass the word to the Wakefield boys that 6 minute flights are possible at Cumberland Field, Nashville, and *still find your model!*"

—R. H. ELLIOTT

FOX 35 FREE

WITH PURCHASE OF COMPLETE VERNON MAC NABB CITIZENSHIP RADIO-CONTROL! LICENSE FREE 27.255 MCS. OPERATION!

TRANSMITTER	39.75
RECEIVER	24.95
ESCAPEMENT	9.95
COMPLETE WITH ALL TUBES	74.65 Postpaid
ALSO AVAILABLE FOR 465 MCS.	79.65 Postpaid

LARGE STOCK OF NEW MODEL AIRPLANE MOTORS. IMMEDIATE POSTPAID DELIVERY. 33 1/3% OFF FOR YOUR TRADE-IN.

Send Check or Money Order. No C.O.D. California Residents Add 3%

ALL AMERICAN MODEL MOTOR EXCHANGE
DEPT. A, BOX 885, SANTA MONICA, CALIFORNIA

NEW NEW

THE FLYING SAUCER

45" diam. Model

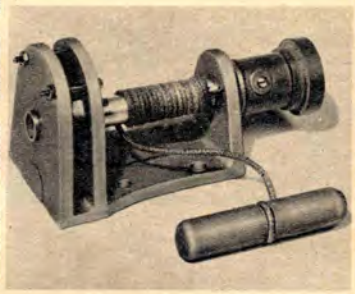
Spins to heights as great as 350 ft. depending on Jet fuel capacity. Model is flown off a launching tower when jets are started. It spins faster & faster until it takes off, almost straight up. Exhaust smoke funnels down from center. As the power dies, the saucer slows down, stops, then begins to turn in the opposite direction, rotating down to a soft landing.

Complete construction prints & Jet details **$4.25** P.P. Be the first one in your town to own this amazing Flying Saucer.

SUNRISE COMPANY
P.O. Box 173-W **Hawthorne, N. J.**

New, Improved STARTER

without clutch	$1.95
with clutch	$2.50



It took us a little while to perfect it . . . but NOW it's better than ever . . . and we haven't broken a spring yet!

Here's enough power to start even a pressure job . . . yet is easy to use and low in price. Batteries last longer. Saves its slight cost in several months.

PYLON BRAND SWIVELS. Proved stronger by pull test. For safety's sake insist on Pylon Brand swivels. Class A, B, C . . . **2 for 15¢.**

PYLON BRAND CLIPS. Easy to use, yet closes with a positive, self-locking grip. Class A, B, C . . . **2 for 15¢.**

NEW, IMPROVED BELLCRANK. Better than ever, this new, heavier bellcrank can't remain bent out of shape. Made of sturdy nylon means no sharp abrasive edges to cut or wear flexible cable. **20¢ and 25¢.**

Ask your dealer for the best . . .
Ask for PYLON BRAND accessories.

Sullivan Products

214 W. DAUPHIN STREET PHILADELPHIA 2, PA.

AIR TRAILS Hobby Shop Directory

Model Builders! Here's a listing of the nation's leading hobby shops. You'll want to file it away—and when you're in the neighborhood, drop in and browse around. They're expecting you.

CALIFORNIA—LOS ANGELES

Nationally advertised model planes, boats, trains, kits and supplies
Weekdays and Mon.-Wed.-Fri. Eves.

PICO MODEL CO.

2540 W. Pico Blvd. DUnkirk 7-5894

CONNECTICUT—WATERBURY

Connecticut's largest selection—Trains in all gauges—Planes—Motors—Boats—Ships—Cars—Paints—and Crafts. Store hours daily, 9 a.m. to 6 p.m. Thursday till 9 p.m.

Harry's Model Train Town

400 So. Main St. Phone 3-7803

FLORIDA—TAMPA

Complete Modern Stock
Planes, Engines, Ships, Trains
Race Cars, Tools and Supplies
Everything Needed

EDWARDS' HOBBIES

102 East Cass Street 26-2092

INDIANA—INDIANAPOLIS (19)

Model Planes, Trains, Race Cars, Motors and Motor Parts.
Boat & Ship Models, Balsa Wood.
10:30 to 7 P.M. Daily

BOB STEELE HOBBY CENTER

1008 No. Emerson Ave. Irvington 1617

KENTUCKY—LOUISVILLE

Model Airplanes—Motors—Race Cars & Supplies. Complete Parts & Service. Repair shop with South Bend Lathe.

FISCHER'S HOBBY SERVICE

618 S. Fourth Clay 3213

MASSACHUSETTS—CAMBRIDGE

Model planes, motors, railroads, ships and accessories.

9 to 6 daily and Thurs., Sat. evenings.

CROSBY'S HOBBY CENTRE

1704A Mass. Ave. KI 7-4389

MISSOURI—PORTAGEVILLE

Model airplanes—motors—solid models. Everything for model airplane builders. Accessories for your every need.

South East Missouri's Finest

Hobby Center

Mosby Hardware Phone 21

NEW YORK—BROOKLYN HEADQUARTERS!

Everything for model airplane builders. Accessories our specialty.
Engines, parts and service.
Everything in Air Trails.

PARK HOBBY CENTER

8120 Seventh Ave. Shore Rd. 5-2972

NEW YORK—BROOKLYN

Large Selection of Hobby Crafts
● Planes ● Trains ● Cars ● Ships
Boats ● Indian Lore ● Scout Crafts
Store hours 10 to 10 p.m. daily & Sat.

BROOKLYN HOBBY DEN

6718 Ft. Hamilton Pkway SH-8-6533

NEW YORK—JAMAICA (3)

HOBBIES — THAT'S ALL!
HOURS: 11 a.m. to 8 p.m. daily
Mon. & Fri. 11 to 10:30 p.m.
Saturday 9 a.m. to 7 p.m.

JAMCO (Jamaica Co. Hobbies, Inc.)
179-29 Hillside Ave. JA 3-9140

PENNSYLVANIA—PHILADELPHIA

HOBBY HEADQUARTERS

Complete stock of model airplanes, engines, parts, accessories, etc.
Also ships—trains—autos—crafts

QUAKER CITY HOBBY SHOP

N.E. Cor. 6th & Market Sts. Lo 3-7465

WASHINGTON—SEATTLE

GOOD SERVICE—HELPFUL ADVICE
Complete Stock
PLANES—BOATS—CARS—HO TRAINS
10 to 6 p.m. W. F. to 9 p.m.
Home of the Seattle Sky Hawks

BUZZ & DOUG'S HOBBY SHOP

701 E. Pike at Boylston EA 8650

A. M. A. Rules

(*Continued from page* 31)

testants an advantage. Flight areas for control line events shall be smooth, to facilitate take-offs and landings.

CONTEST BOARD SUGGESTION. The AMA Contest Board "suggests" that Contest Directors equalize control line speed and precision acrobatic events to allow a more equal distribution of prizes. (This implies that a meet with two control line speed events should also have two precision acrobatic events.)

REPORT OF COMPETITION. Within 7 days following competition, the Contest Director shall report the results to the Contest Board, using the standard report form. This report shall list complete results of events where five or less are registered and the first five place winners of events where 6 or more entrants register. In addition to the flyers' names, their AMA license numbers, addresses and age classification shall also be given.

REPORT OF RECORD PERFORMANCE. Within 7 days following a performance believed to establish a national record, the flyer(s) or the Contest Director shall submit to the Contest Board a report of the performance on the applicable form. All information requested on the form must be given, and in every case in which a model other than a standard kit model is used, the forms must be accompanied by a 3-view drawing of the model with all pertinent dimensions given. No records will be homologated unless the above requirements are met.

BUILDER OF MODEL. The Contest Director shall make every reasonable effort to assure himself that each flyer has completely "constructed" the model(s) he uses in competition, including the covering where used, with "construct" to be interpreted as the action required to complete a model starting with no more prefabrication than the amount used in the average kit. Models which are completely prefabricated and require only a few minutes of unskilled effort for their completion shall be excluded from competition. In the case of rubber-powered models, the contestants shall have completed the propeller(s). Materials and design may be obtained from any source, including kits.

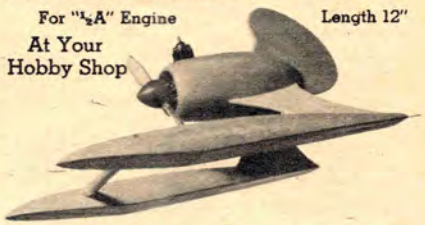
(To be continued in subsequent issues.)

It's Terrific!

THE DOODLE BUG $1.98

For "½A" Engine Length 12"

At Your Hobby Shop



Runs on Water
All parts completely pre-cut and shaped
Easy to assemble with self aligning slots
At your dealer or send $1.98 to

RAINBOW MODELS

507 So. 13th St. Newark 3, N. J.
Add 15c to cover handling

Cutlass For Jetex 50 **95¢**

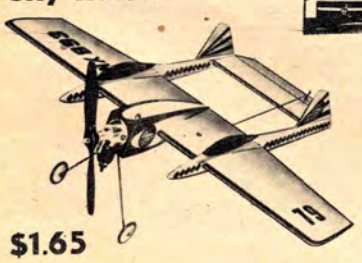
"Official ½A PAA LOAD" Space Master $2.75

• DECALS • • SHAPED DUMMY • • DIE-CUT FUSELAGE PARTS AND RIBS •

Speedee $1.85

• FOR ALL ½A ENGINES INCLUDING SPACE BUG •

Sky-Raider



$1.65

Jasco Nordic $3.50

"Official Nordic Glider"

Cougar

For Jetex 50

95¢

• EXCELLENT GLIDING CAPABILITIES •

JUNIOR AERONAUTICAL SUPPLY COMPANY

203 EAST 15th STREET, NEW YORK 3, NEW YORK

Buy JASCO quality kits at your dealer.

Remember—an Air Trails subscription makes a perfect Father's Day gift.

LAST CALL! FOR THE NATIONALS

Here Are Parts and Supplies To Help You Finish Up A Prize Winning Entry.

Make Father's Day A Hobby Day. Here's a hangar full of gift suggestions for Dad.

½A Space Bug

Gas Engine

A top performer. Complete with prop and gas tank.

$6.95

OTHER LEADING ½A ENGINES

OK Cub .14	$8.95	Wasp U.C. .049	$6.50
OK Cub .049	5.25	Royal Spitfire .065	7.95
OK Cub .074	5.95		
OK Cub .099	6.95	Baby Royal Spitfire .049	4.95
Wasp F.F. .049	6.75		
Fox 35	14.95	Forster F 29	11.25
Fox 19	13.95	Forster F 31	11.25

GAS ½A KITS F.F.

Dakota	$2.75	Comet Pacemaker	$2.50
Sioux	2.75	Big Lift	2.50
Rival	2.95	Streak	1.95
Mini Hogan 34	1.95	Zephyr	1.95
Mini Hogan 45	2.95	Fu Bar 36	1.95

GAS ½A U CONTROL

Half A Twin	$2.95	P-40	$3.95
Speedster	2.50	S.E. 5	2.50
Small Fry	2.50	Little Sabre	1.95

OTHER CLASS ENGINES

Ohlsson 19	$11.95	Super Cyclone C	$12.95
Drone Diesel C	14.95	Pacemaker C	15.50

Micro Diesel A $14.95

GAS KITS F.F.

Fu Bar C	$6.95	K.C. Terror C	$4.95
Spearhead Jr.	1.95	Javelin	3.95
Spearhead Sr.	3.95	Fokker D-B	5.95
Sr. Live Wire Radio Control A-B			14.95

Corr's Surprise Package

Guaranteed $5.00 worth of kits, supplies, accessories (our choice) only...

$1.95

ACCESSORIES

Handy Reel by Thimble Drome	$2.95
U. Reely by A. J.	7.50
Clutch Starter	2.50
Fuel Filter by Pylon	.25
Fuel Pump with Screen	.60

Full Line of Balloon Tires by Trexler

Giant New Military Figure Catalog	.35
Ships and Historic Models Catalog	.25

ORDERS SHIPPED SAME DAY RECEIVED

HOW TO ORDER

Please send remittance in full by check or money order plus 10% for postage and packing. No C.O.D.'s.

CORR'S of WASHINGTON

812-818 NINTH ST., N.W.
WASHINGTON 1, D.C.

DEPT. AT

BONZO

(*Continued from page 29*)

pioneered by Wittman. The 1952 win was made with a metal Sensenich scimitar prop. Canopy design is simplicity itself, using flat sheet rather than a blown bubble. *Bonzo* has lowest aspect ratio wing of any of the racers, slightly less than 4 to 1 giving a span of 15 ft. 4 in. Length is 17 ft. 6 in.

Bonzo is an excellent choice for flying scale fans. Its many straight lines lend themselves to easy and quick construction. If the team race boys wanted to fudge a bit and hide the inverted engine with a larger cowling, *Bonzo* would be a real competitor in the race circle, her size and weight being within all requirements. Although stunting is no longer required for flying scale events, *Bonzo* is quite capable of all but the most difficult stunts. On the first flight the original model with stunt ribs looped and flew inverted with ease despite an over-rich throttle setting.

The model is built to the old faithful scale, 1¾" = 1', which your author feels is just the right size for .23, .29, .32 powerplants. Model span is 26⅞", length is 31", wing area is 197 sq. in. and weight is 1½ lbs., extremely light for most flying scale models. Original engine used was O&R .23 swinging a 9/6 Power Prop, but engines up to .32 or .33 could be used for really high speed. If larger engines are used model will balance fairly nose heavy and lead may have to be added to the tail.

Complete construction details are available on the full-size plans.

BIG BUTTERCUP

(*Continued from page 52*)

the firewall, then cemented in position. The cowl blocks are cut to size and cemented together along with the engine firewall; when dry carve to shape, add the hinges for the cowl.

DARWIN SHAKE-PROOF TANKS

See the complete line on display at all dealers. Tanks may be cemented into your plane, will not leak or the tubing shake loose.

Twenty eight different sizes from .14 oz. to 5.1 oz., 1-2 A to class D. Constructed completely of fuel proof brass.

PW Series	$ .50 ea.	L Series	$ 1.00 ea.
B Series	.75 ea.	M Series	1.00 ea.
S Series	1.00 ea.	A Series	1.00 ea.

Special No. 0 for Team Racing $ 1.00

DARWIN MODEL AIRCRAFT CO.
2430 TREMMEL AVE. ANN ARBOR, MICH.

What fun you will have with Dad putting together this beautiful plastic scale model of the Skyknight. It is a perfect replica of the one on the front cover. To assure yourself of the best and to please Dad, too, be sure it's an Allyn kit. There are 10 different models from which to choose.

$2.49

Allyn SALES COMPANY, INC.
6425 McKinley Ave., Los Angeles 1, Cal.

Classified Advertising

Everybody reads the classified. Here is a section hand-tailored for anyone with something to sell or buy.

RATES: Minimum 14 words for only 20c per word
Send remittance with ad to:
AIR TRAILS, 575 Madison Ave.
New York 22, N. Y.

SPECIAL OFFERS

Receive a ½ Class A model airplane and engine, practically as gift. Details 10c. Hobbycraft, Box 104 E, Brooklyn 30, N. Y.

SPECIAL SALE: Large volume sales have enabled us to include at no extra cost with each glo engine you purchase from us: 1 fuel tank fully assembled (stunt or free-flight), 12 inches fuel line, 1 large streamlined propeller spinner, 1 special 4-way plug and propeller wrench, 2 propellers, 2 alligator clips, 2 battery terminals, 4 mounting bolts and nuts, 3 feet hook-up wire. PLUS all accessories included by the manufacturer. We stock all nationally advertised engines at regular prices. 10 day money back guarantee. We pay postage. Dad's Hobbies Unlimited, 7506 Hix Road, Plymouth, Michigan.

SPECIAL DEAL, ORDER NOW!—Receive twelve matched Power Props absolutely FREE with the purchase of a new motor at the full regular price from us. Write: Northside Supply, ½ Saint Francis Place, Buffalo 7, New York.

TRADE-IN OFFERS

33⅓% 33⅓% 33⅓% 33⅓%—Trade-in allowance for any fairly complete used engine (except Thors Buzz etc.) on any new engine. Extra nice trades bring more, send card for details! 10c brings our amazing and humorous used engine list, sent out regularly. Will match all advertised allowance offers and combination deals. C.O.D. orders accepted. Fast Engine Exchange, Box 821, Warren, Ohio.

RADIO CONTROL EQUIPMENT

LATEST R/C PLANE—.09 to .14 power—"TRIXTER BEAM" $6.95 postpaid. All types R/C equipment and model supplies. Three Feathers Hobby Service, P. O. Box 405, Dedham, Mass.

RC FANSHAVE THROTTLE CONTROL installed on your motor. For information write Thompson Model Supply, P. O. Box 372, Guthrie, Okla.

NEW ACE ESCAPEMENT RELAY – Combines function of receiver relay and self-neutralizing escapement. Escapement batteries unnecessary. Total weight 1.5 oz. 10,000 ohm coil. Especially recommended for two-tubers. Costs less than relay alone. Introductory offer $6.50 postpaid. Satisfaction guaranteed. Radio catalog 10c. Ace Radio Control, Box 301, Higginsville, Mo.

MODEL SUPPLIES & EQUIPMENT

ROUGH ALUMINUM SPEED PANS: A–8¼ in., $1.75; B–11¼ in., $1.80; C-D–14 in., $1.90. John Gerstenfeld, 2329 California Street, Washington 8, D. C.

BALSA WOOD—Complete line of stock sizes. Select grade—strips, planks, blocks. Free price list —dealer discount. Ragusa Mfg. Co., Box 157, Franklin Square, N. Y.

CONTROL KING—NEW STICK CONTROL box for flying line control planes. 40 pound test. Easily assembled. Postpaid $2.95. Control King, Box 71, Julesburg, Colorado.

SILVERPLATE SPEED ENGINE PARTS. 10c brings literature. $3.00 brings brushplater kit P.P. V.S.R. Hobbies, Box 337, Blair, Nebr.

JATO ROCKETS terrific speed and power for models. Basic solid fuel rocket basic construction manual. $1.00. Rocket Research Laboratories, Dept. J, Reseda, Calif.

PHOTOGRAPHS

WORLD WAR I AVIATION PHOTOGRAPHS—Aircraft, Aces, Crashes and miscellaneous. 25c for catalog and sample photo. Aviation Photo Service, 339 Shirley Drive, Syracuse 7, N. Y.

AIRCRAFT PHOTOS from World War I to latest jets. New catalog and sample photo 25c. Airphotos, Box 117, Jamestown, N. Y.

PHOTOS-GLOSSY, clear 5 in set 25c. Try a set today, see them, enjoy them. Sample and list 10c. Harry McIntyre, Box 423, Ocean City, New Jersey.

WANTED

WANTED – AIR-MINDED AMERICANS – The United States needs 300,000 additional spotters for the ground Observers Corps. Join now! Contact your local Civil Defense Director or write to Ground Observer Corps, U. S. Air Force, Washington 25, D. C.

WANTED 1000 ready built scale models with detail, beautiful finish, with or without engines–20" to 60" wing span, submit data or photo. Joseph's Sales Co., 15200 Kercheval, Grosse Pointe Pk. 30, Michigan.

PLANS

PLANS $1—Flattop 66, BC, FF. Won first class C open 1951 Nationals. Simple construction. Top Model Shop, Rt. 2, Box 358, Medford, Oregon.

BOOKS

CAA EXAMS. Our exams are brought up to date weekly and are based on the exact CAA questions and answers. Money back guarantee included. Commercial, Private, Power-plant Mechanic, Instrument, ATR, Flight Instructor, Airframe Mechanic. Any one rating $5.00. Any four ratings $10.00. Acme Flight School, Meacham Airport, Ft. Worth, Texas.

CLUBS

FLYING SAUCER CLUB—$1 brings badge, certificate and Subscription to "Flying Saucer News." Secretary: 42 Rothbury Road, Hove, Sussex, England.

Dad'll prove hez a whiz on lines—get him started in control line!

Air Trails
FULL SIZE PLANS

GROUP 753-A

RADIO CONTROLLED BUTTERCUP — Steve Wittman's high-wing utility and personal transport as a splendid R/C SCALE model. Designed by Frank Ehling, takes practically any radio equipment; span is approx. 62 inches. McCoy Diesel used to power original.

LA SORRA Wakefield model by Lee Renaud of the New England Wakefield Group. Span is 46 inches; fuselage is 43 inches. Power is 20 strands of 1/4x1/24 inch flat T-56 rubber 58 inches long. A fine competition craft for the experienced flyer; this event will be flown at the 1953 National contest and many regional meets this year.

PORSCHE SPORTS CAR by Aubrey Kochman. Run-over building instructions and cut-away views.

PRINT NAME, ADDRESS AND PLAN NUMBER PLAINLY. ENCLOSE COIN OR MONEY ORDER.

50c (For all 3)

GROUP 753-B

BONZO control line flying scaler by S. Calhoun Smith. Noted Goodyear-Continental design race winner owned by Steve Wittman. This is a light, maneuverable model of 26¾ inch wingspan, 31 inches overall in the fuselage. Cal flies his with an O&R .23 glow plug, but says you can use almost any power from .23 to .33.

SWAN SONG by A. G. Lennon of Canada, a remarkable flying boat for the .14 Cub engine; very realistic in appearance and flight characteristics. This high wing semi-scale free flight has a span of 58 inches and an overall length of 38 inches. An extremely interesting project if you're lucky enough to live near a lake, pond or river.

WITTMAN BUTTERCUP AS HALF-A C/L OR F/F SCALE. This is Frank Ehling's small version of Steve Wittman's famous passenger-cargo cabin midget. For free flight scale contest or sport work takes .02 power; on end of lines uses .049 McCoy Diesel or similar motor.

PRINT NAME, ADDRESS AND PLAN NUMBER PLAINLY. ENCLOSE COIN OR MONEY ORDER.

50c (For all 3)

All official Air Trails full size plans ARE NOW AVAILABLE ONLY through HOBBY HELPERS

FREE! COMPLETE, FULLY DESCRIPTIVE CATALOGUE OF ALL AVAILABLE FULL SIZE PLANS. PRINT NAME AND ADDRESS CLEARLY AND ENCLOSE 6c IN STAMPS TO COVER POSTAGE TO:

HOBBY HELPERS
770 HUNTS POINT AVENUE
NEW YORK 59, N. Y.

Ideal MODELS

"EASY-TO-ASSEMBLE" AUTHENTIC KITS

COMPLETELY PREFABRICATED WITH METAL, PLASTIC AND DIE CUT PARTS

"PIONEER TRAIL"

$1.50 EACH

Send 10c For Catalog

IDEAL MODELS
24-26 WEST 19th ST., NEW YORK 11, N. Y.

The wing is standard construction and will offer no difficulty. Cement all joints well; check to see that ribs are glued securely to the trailing edge—this will prevent the covering from warping the wing. Hollow the wing tip blocks for lightness. Use quarter-grain balsa for all sheet covering for extra strength.

Further construction details are available on the full-size plans.

MODEL BIZ

(*Continued from page* 71)

its major line of model and hobby items and will continue to serve both the hobby and toy fields in the future . . . Art Hasselbach of ConSOLIDated reports:

"For the past year we have been testing a newly-designed 60 racing engine which we call the Hell Razor 60. During 1952 this type of engine was used in a model racing speedboat.

"After a successful year, the Hell Razor 60 took many first places. We bench-tested the engine, using a seven-ounce flywheel and attained 24,000 rpm. This in itself was a good check for stress. On the initial test flight we installed the Hell Razor 60 in a 21-ounce Hell Razor Class D model, using an 8/13 wide-blade propeller and a very rich fuel mixture. With this combination we achieved a speed of 136.45 mph.

"The engine features two crankshaft ballbearings, a specially designed piston and wrist pin, one piston ring, twin exhaust ports, twin transfer ports, pins on drive plate for propeller and a ¼" shaft that fits all stock-sized propellers. The bore is 1.015; stroke .750; measures 3⅛" high from the bottom of the case to the top of the head and 1-5/16 across the bottom of case. The engine weighs approx. 9¾ oz."

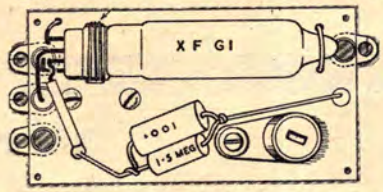
DEALERS WRITE
FOR THE COMPLETE
TROST A to Z LIST

Our complete A-Z list of "TROST LINES" includes most of the best known brands, plus many lesser known parts and supply items you never know just where to buy. This list will help you keep your stock complete. Write for it now.

TROST
Modelcraft and Hobbies

3140 W. 63rd St. Chicago 29
PLANES - TRAINS - SHIPS - PARTS - SUPPLIES

"MIDGET 1" RADIO



NEW, "MIDGET 1" RECEIVER, TRANSMITTER & ESCAPEMENT, 27 M C LICENSE FREE BAND. SUPER LIGHT WEIGHT RECEIVER USES XFGI TUBE AND POLARIZED RELAY. CRYSTAL DESIGN TRANSMITTER RANGE 1½ MILE. ESCAPEMENT OPERATES SOLENOID PRINCIPAL. NO RUBBER OR SPRINGS FOR POWER & SELF NEUTRALIZES. PARTS FOR ABOVE THREE UNITS SIMPLE EASY ASSEMBLY. TWO YEARS ENGINEERING WORK PUT INTO DESIGNING THE UNITS.

"PRICE INCLUDES SIGMA 10,000 OHM RELAY."

SPECIAL INTRODUCTORY PRICE RECEIVER TRANSMITTER AND ESCAPEMENT—$6.98

Latest Radio Parts catalogue, Tells how to obtain parts at ½ to ¼ price you normally pay.....25¢
Order from Dept. A

RADIOMODELS, Box 36, Baltimore 6, Maryland

I.M.P. **The TRADE-MARK of QUALITY**

A Brand New Addition!

THE IMPY SAILOR

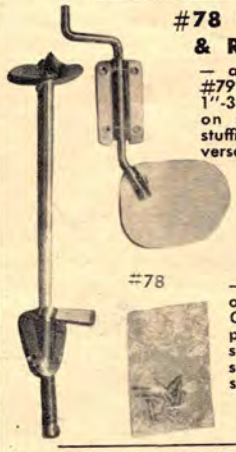
— a spanking new, 21" high, real Class A Sailboat in the jiffy "knockdown" form. The 14½" hull with 3½" beam is completely carved and fully painted in 4 colors. Bright lustre varnished scored plank deck. The 17½" mast carries finished and attached cloth sails with slide blocks. Ready painted keel is furnished and attaches with 2 screws. New patented *Automatic Steering Device* attached to rudder assures smooth sailing always. Clear blueprint and instructions make assembly a 5 minute job. **$4.98**
Complete with drydock stand .....
(Remember it's a real boat not a bathtub plaything.)

#79 IMP PERM MAG BOAT MOTOR 1½ x 2¼ x 1" **$1.50**

Check these figures from the performance chart of a leading magazine — Compare Impy motors with others 2 or 3 times the price.

IMPY #79	COMPETITORS
RPM @ 2V...4200	1800 (higher priced)
RPM @ 6V...8500	3400 (higher priced)
Weight ....2.8 oz.	10 oz.

IMP #95 SUPER Motor — (2¼ x 3½ x 1⅝") operates on 3 to 12V, and retails at ½ the price of similar types. **$2.75** only



#78 IMPY SCREW & RUDDER SET
— a companion to the #79 motor. Consists of: 1"-3 blade prop mounted on shaft, tube, strut, stuffing box, Spring Universal, Rudder **$1.00**

#78

#70 IMPY SCREW & RUDDER SET
— for use with motor or 1/2A gas engine. Consists of: 1 ½" prop on shaft, tube, stuffing box, strut and skid, Spring Universal, Rudder. **$1.50**

#60 Auto Type Reverse Selective Switch
(complete with hook-up sketch) — operates same as auto for lights, forward or reverse. **40¢**

#53 Steering Wheel Switch
(complete with hook-up sketch) — operates by turn of wheel for forward (single or double) speed, reverse and lights. **85¢**

These are just a few items in the world's largest line of boats and parts. Each IMP product backed by 25 years of experience and service.

Send 20c for latest Marine Catalog — at better hobby dealers everywhere (or write Dept. AT 7). Minimum Mail Orders $1.00.

INTERNATIONAL MODELS, Inc.
33 Union Sq. W., New York 3, N. Y.

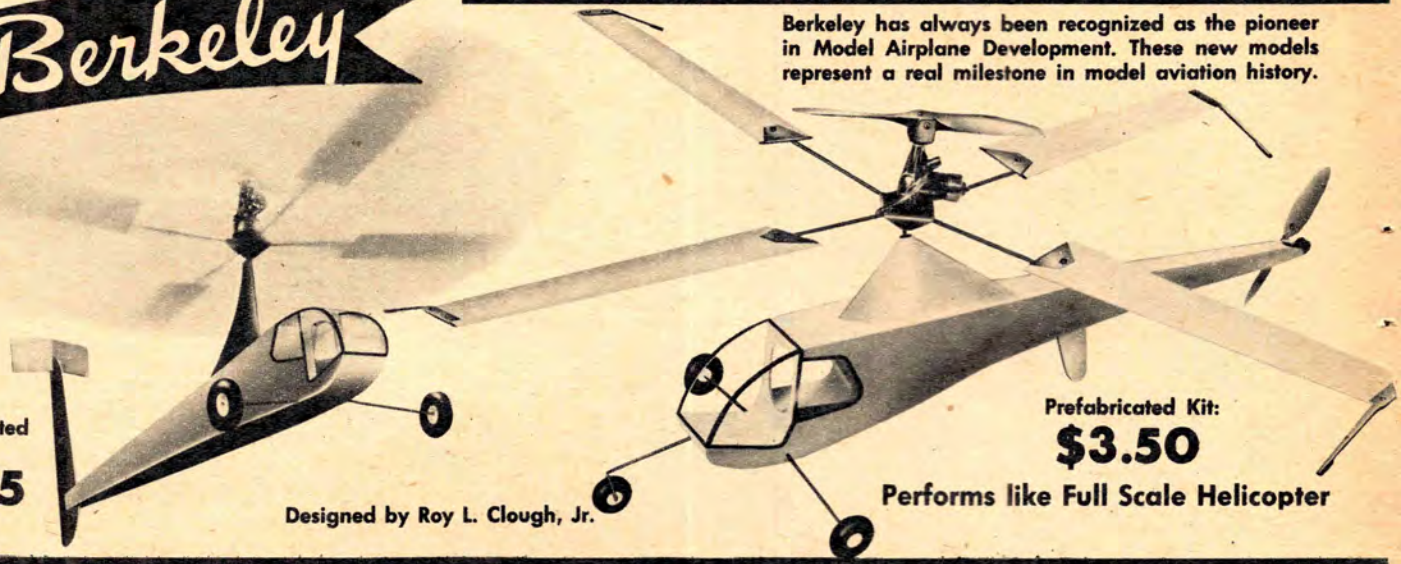
Make it a memorable Father's Day—give him a radio-control unit

"1/2A" FREE-FLIGHT HELICOPTERS...

by Berkeley

CLIMB VERTICALLY — HOVER — FLY FORWARD OR BACKWARD

Berkeley has always been recognized as the pioneer in Model Airplane Development. These new models represent a real milestone in model aviation history.



Prefabricated Kit: **$2.95**

Designed by Roy L. Clough, Jr.

Prefabricated Kit: **$3.50**

Performs like Full Scale Helicopter

CLOUD-COPTER "D"

with Fixed Drogue Tail

For .045 to .074 Engines — 26" Rotor Span

CLOUD-COPTER "TR"

with Adjustable Pitch Tail Rotor

For .045 to .074 Engines — 25" Rotor Span

Here is a real advance in model flying. So new and different that the performance is almost unbelievable. You can actually adjust a "CLOUD-COPTER" to hover, fly forward or backward and even spiral climb like a conventional gas model. Fully automatic Cyclic and Collective Pitch Vanes, as on full-scale helicopters, permit the rotor to continue in the same direction after the engine stops. "CLOUD-COPTERS" are quickly built from our highly prefabricated kits.

EACH "CLOUD-COPTER" KIT CONTAINS-

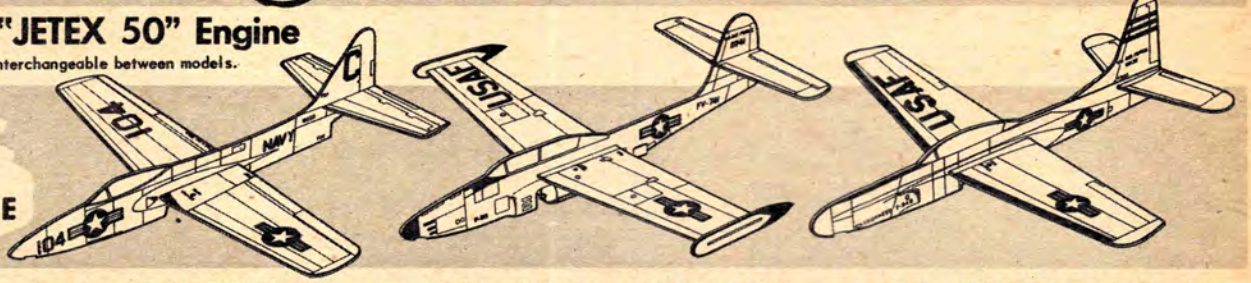
Complete Metal Rotor Mast Assembly; Metal Blade Holders designed for quick replacement of blades; Metal Blade Balance; Engine Shock Mount; Shaped Rotor Blades; Die-Cut Sheet Balsa fuselage; Wheels; Die-cut Celluloid Windshield.

READY TO FLY 3 SIL-O-JETS

Complete with "JETEX 50" Engine

"Jetex 50" Engine is instantly interchangeable between models.

$1.95 FOR ALL THREE



F-9-F "PANTHER"

Famous carrier-based fighter used by Navy and Marines in the Korean War.

F-89 "SCORPION"

All-weather interceptor with terrific climb, for searching radar equipment.

F-94 "STARFIRE"

The first electronically controlled fighter, with all rocket armament.

FOR INTERNATIONAL WAKEFIELD COMPETITION!

"SUPER CLOUD"

$3.95

A Deluxe Advance Design Rubber Powered Wakefield Model!

51" Wingspan — 210 Sq. " Wing Area — 8.113 Oz. Total Weight.

Designed by Henry Struck in the fine tradition of his famous "Flying Cloud," this new model is the culmination of 15 years of test research on Wakefield models. It has been designed for maximum performance under the new Wakefield rules.

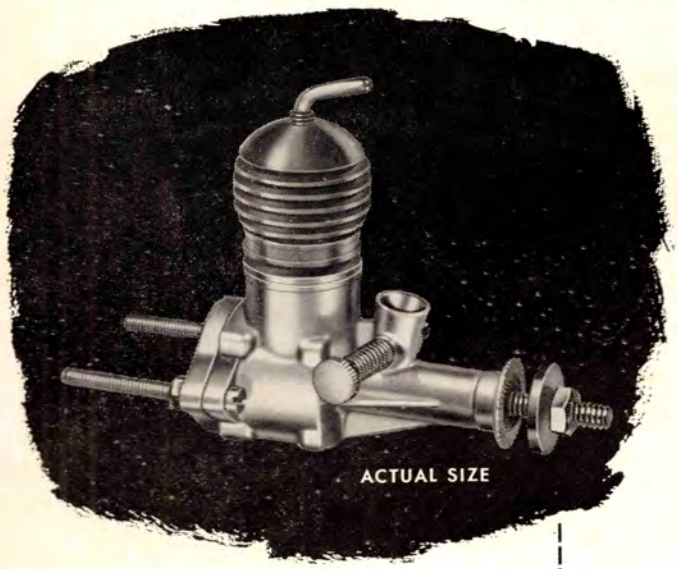
THE KIT INCLUDES: Specially selected Balsa throughout; special Hardware for the Folding Propeller; Milled-Shape Balsa Propeller Blank; Covering Materials; and extra-complete Plans and Instructions.

buy BERKELEY at your local dealer!

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. AT., West Hempstead, N. Y. Please include 25¢ packing & postage.

ANOTHER GREAT ENGINE FROM McCOY®

Duro-Glo DIESEL



America's First Mass Produced Diesel

Here is the answer to every modeler's dream of a small engine with extra power to lift and fly faster, larger craft. Introducing for the first time, McCoy's newest . . . and a great model engine . . . the McCoy Duro-Glo Diesel. Most powerful power plant in its class a plane can have. Duro-Glo at .049 displacement develops 50% more power than the comparable glo type engine.

Three Years in the Making

It took McCoy engineers three years of exacting tests and careful trials in all weathers and under varied conditions to perfect the new Duro-Glo. This is the perfect engine for "½A" flying . . . readily responds to hot or cold starts, ready to go in any kind of weather.

Examine these features:

- ★ No batteries for starting
- ★ Adjustable compression ratio
- ★ Hot or cold starting
- ★ No glo-plug
- ★ Extra power to fly larger craft
- ★ Record setting performance in "½A" flying

SPECIFICATIONS

Bore	.406
Stroke	.380
Displacement	.049

$5.95

McCOY DIESEL FUEL

Buy only McCoy Diesel fuel for your Duro-Glo engine. It will perform better, not cause formation of gum, varnish or sludge in your engine. Insist on the real McCoy. Your hobby shop has it. **Half pint—45c**

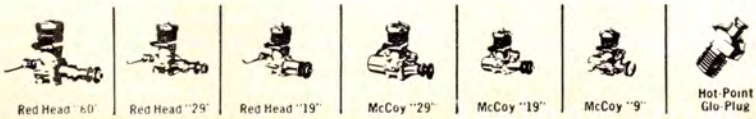
The Diesel Principle—McCoy Diesels operate on a principle discovered by Rudolf Diesel in 1893. Fuel ignites when temperature is raised by compression inside the cylinder. Thus, a few prop turns and your Duro-Glo roars into action. Full instructions are included with every McCoy Diesel.

The sky's full of McCoys

McCOY's *famous* CHECKERED FLAG *line.*

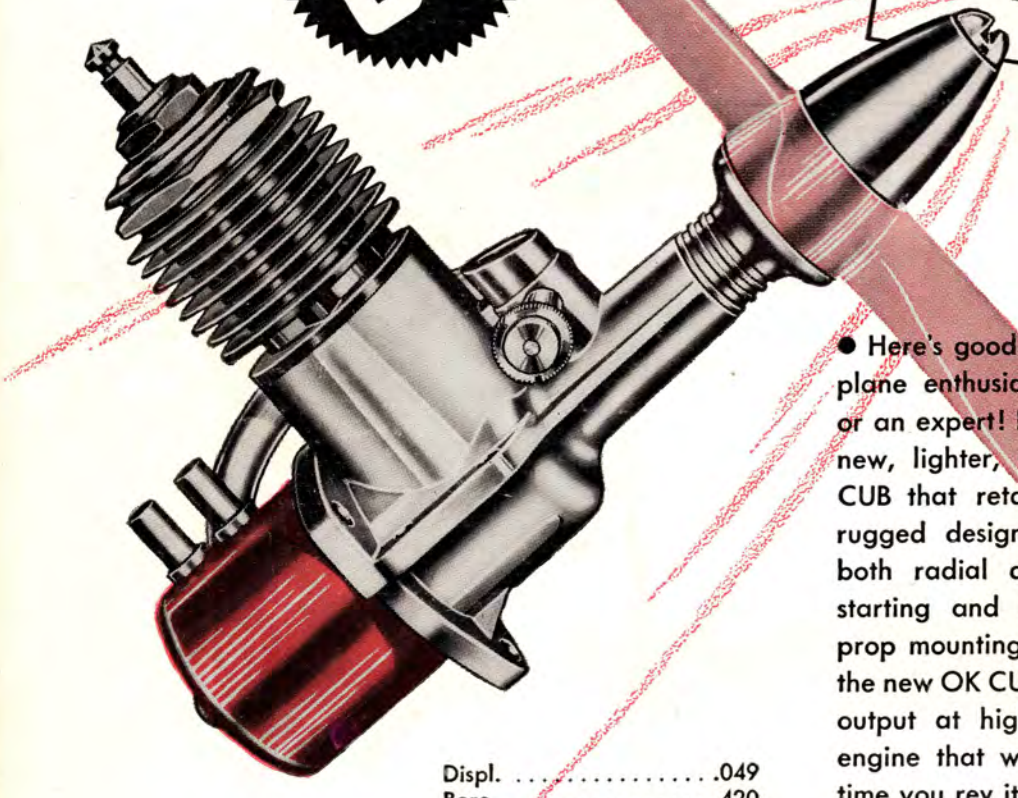
McCOY PRODUCTS COMPANY

8509 Higuera Street
Culver City, California



New OK CUB .049B

LIGHTER WEIGHT
GREATER POWER



Displ. 049
Bore 420
Stroke 360

● Here's good news for every model airplane enthusiast — whether a beginner or an expert! Now we offer you a brand new, lighter, more powerful "OK" .049 CUB that retains all the famous "OK" rugged design features you want. Has both radial and lug mountings — fast starting and higher speed — extended prop mounting for safer operation. And, the new OK CUB .049B provides maximum output at higher RPM. Yes, here's the engine that will give you a thrill every time you rev it up — see it now!

● The new "OK" CUB .049B comes only in a complete assembled unit — ready to run. Look for the new package with the window front — see all the quality features at a glance. Bare engine weighs slightly more than an ounce. With fuel tank, prop and spinner weighs one and one-half ounces.

ONLY
$4.95
complete with fuel tank, glow plug, propeller and spinner.

See your dealer or write direct **HERKIMER Tool & Model Works** 78 Harter Street Herkimer, N. Y.